

EXCAVATIONS AT BURZAHOM (1960-1971)

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प्रत्यक्षं वदते

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PREFACE

The Neolithic site at Burzahom was discovered in 1935 by H. De Terra and T.T. Paterson of the Yale-Cambridge expedition during their pioneering investigation of the Himalyan glaciation and evidence of Early Humans in the Kashmir valley. They undertook trial diggings at the site and their observations on stratigraphy and material remains paved the way for carrying out further excavations in understanding the cultural sequence of the site.

However, for more than two decades, no proper investigations were carried out at the site for understanding its archaeological importance. The situation changed soon after the merger of the State Department of Archaeology of Jammu and Kashmir with the Archaeological Survey of India in 1959. The merger provided a new impetus in the promotion of archaeological research and preservation of monuments and sites in the Valley. It was at this point of time the task of undertaking excavation at Burzahom was entrusted to Mr. T. N. Khazanchi in 1960. In fact, Burzahom was the first habitation site of its kind in Jammu and Kashmir which was extensively excavated from 1960 to 1971. His extensive training in field archaeology, especially in excavation, under Sir R.E.M Wheeler, the then Director General of ASI, became very handy in unravelling complex stratigraphic issues of the site. The credit therefore entirely goes to Mr. Khazanchi for all the exciting findings from the excavation and for the first time, unravelling remains of the earliest food producers of the Valley.

The story of Burzahom excavation is quite an exciting one. The new discoveries from Burzahom instantly attracted considerable attention of national and international scholars. This was instrumental in initiating new explorations leading to the discovery of several sites in the Kashmir Valley, the Swat Valley, and sites such as Gumla and Mehrgarh in Pakistan and Karuo in Tibetan Plateau. These discoveries and subsequent excavations revealed that the Neolithic remains in Kashmir shared several cultural traits with the neighbouring region, for instance Sarai Kola in the Potwar Plateau, Ghalgai and Leobanr in the Swat valley and Karuo in the Tibetan Plateau. These findings have helped immensely in recognizing the specific regional traits and features of the Northern Neolithic culture of the subcontinent.

During the early post-glacial times, important changes both in culture and in subsistence activities took place in the Kashmir Valley. The long epoch of hunting and food collecting economy of Palaeolithic forebears of the Late Pleistocene time came to an end and a new era based on food production involving husbandry and stock raising started in the post glacial climatic condition of the Holocene. Evidence for this change from forager stage to the productive or farming economy has been identified as Neolithic culture. The findings from the excavation at Burzahom make it possible to understand the various stages in the development of farming economy, recognised herein as one of the richest Neolithic cultures in South Asia. Archaeological investigations conducted by ASI, Kashmir University, and Kashmir Palaeoclimatic project in the 1980's revealed that Kashmir has a highly developed food producing culture spread through the length and breadth of the valley, not just confined to Burzahom. But unfortunately very little research work on the prehistoric archaeology has been carried out in the valley because of the conflict and unrest since the late 1990s.

For several reasons, no proper report of the Burzahom excavations could be published for four decades. This was unfortunate considering the site being the first of its kind to be excavated and the type site for the Northern Neolithic. Needless to say, this has severely hampered further research in the Neolithic cultural development of the region.

Keeping in view the importance of the Burzahom excavations, I have been assigned to write the excavation report. Having been associated with the Srinagar Circle for more than one decade (1985-1997), I eagerly took up this assignment as an opportunity to make a meaningful contribution in defining the various stages in the development of food producing communities in the Kashmir Valley from the available evidences of Burzahom excavations. The site notebooks, field diaries, published materials submitted to "Indian Archaeology- A Review" the annual journal of the Archaeological Survey of India and other related documents prepared by Khazanchi were deeply inspiring and immensely helpful for me to undertake this task.

This excavation report has been prepared by synthesising the data drawn from the detailed study of excavated material from the excavation at Burzahom housed in the central antiquity section, Purana Qila, and also study of data from recently

excavated and explored sites in the Kashmir Valley and adjoining areas. This has helped in contextualising the development of Neolithic culture in the mountainous region, particularly the Kashmir Valley against the recent studies on the spread of early farming villages in the Himalayan zone of South-Asia. The lengthy survival of cultural and economic stability of the Northern Neolithic culture in Kashmir has helped to identify it as an important hub within a wider network of Agro-Pastoral exchange taking place between mountain zones and the settled areas of inner Asia during Neolithic–Megalithic period.

The present report on the Burzahom excavations is primarily based on the unpublished data and notes prepared by Khazanchi. It has been subjected to some modifications in the light of recent discoveries of a number of associated sites in the region. The contributions made by B.M. Pande, A.K. Sharma, R.K. Pant, Late S.L. Shali, S.S. Saar and R.N. Kaw have helped me to review the field data of Khazanchi to present this report in proper archaeological perspective. Moreover, having been associated with the Srinagar Circle of the ASI, I was able to conduct intensive and extensive archaeological explorations and excavations in the remote Valleys of Jammu, Kashmir and Ladakh, Himachal Pradesh, Uttarakhand and Afghanistan. This enabled me to study the excavated material of Burzahom in a wider perspective in the context of South and Central Asian archaeology.

I am indebted to T.N. Khazanchi and his team members (Appendix I) who excavated the site, classified and documented the excavated materials, prepared site plans, drawings, field notes which form the basis of this report. My grateful thanks to S.S. Saar, Late Jassu Ram, S.N. Tikoo and R.K. Kaul for the preparation of site plan, section drawing, maps and illustrations. Sincere thanks to RN Kaw and Balbir Singh Jamwal and late Puran Singh for photo documentation of Burzahom Excavations. I am deeply beholden to Sultan Dar who was born and brought up at Burzahom camp for giving me the benefit of his association with Burzahom Excavations through discussions and sharing valuable information about the site.

This report is the result of the contributions of many individuals and institutions. I owe a great debt of gratitude to all the archaeologist and scholars who have excavated important Neolithic Site in the Indian Subcontinent

particularly in Kashmir and Northern Pakistan and have written interim excavation reports and upon their findings and writings I have drawn liberally.

The chapter on beads and pendants has been contributed by B.M. Pande. The material for the chapter on burial practices has been accessed from 'Prehistoric burials of Kashmir' by A.K. Sharma (1998) and 'Human remains from Burzahom' by A. Basu and A. Pal (1980).

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My thanks are due to my colleagues Sangeeta Chakraborty, Ashutosh Saxena, Devendra Singh, Rajbir Singh, Ravinder Kumar, Puran Chand Mukhiya, Kamlesh Kumar and Baldev Singh. I thank Sarjun Prasad for always facilitating my access to the excavated material of Burzahom housed in the antiquity section Purana Qila.

I express my gratitude to Usha Sharma, Director General ASI for taking keen interest in expediting its publication. I am also thankful to Manuel Joseph and his team in publication section for their help and cooperation in publication of this report.

The long awaited excavation report on Burzahom has been finally completed and is ready for the reader. Lack of dedicated resources, infrastructure coupled with an inert working environment was sorely felt during the preparation of this report, a lot of work was required to be undertaken on holidays and beyond regular working hours at my residence.

Words are not adequate to express my gratitude to my wife, Prabha who is always patient and generous self. Without the help and support of my family this work would never have been accomplished.

Needless to mention, the responsibility for errors and omissions if any rests solely on me.

Dr. Ramnath Singh Fonia

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1.0 INTRODUCTION

The beautiful Valley of Kashmir, situated among the snow-capped Himalayan peaks and summits of the Pir Panjal Range, offers a very promising field for the archaeological research to understand the various stages in the evolution of the food producing communities on the basis of local development and changing climatic conditions of the Holocene

Couched in mythology, one of the earliest literary accounts of Kashmir is found in the sixth century Sanskrit work, the *Nilamatpurana*. There are many legends connected with the desiccation of the lake, before the valley became suitable for habitation. It begins with an interesting legend, according to which, the entire Kashmir valley was once a vast lake known as *Satisar* (*Lake of Goddess Sati, Consort of Lord Shiva*). The lake was a shelter of the water demon named *Jalodhava*, till lord Vishnu assumed the form of *Boar* (*Varah*) to struck the mountain at *Baramulla* (Ancient *Varahamula*) boring and opening in it for water to flow out. There is reference in *Nilamatpurana* that the *Nagas*, inhabitant of the mountain region being the main victims of the water demon prayed to the *Sage Kashyapa* for deliverance of his oppression. Since the demon was invincible within water, his element, the Sage did great penance and was thus able to secure divine intervention.

Kalhana's *Rajatrangani* (River of Kings) mentioned that Prajapati *Kashyapa* was assisted by Brahma, Vishnu and Shiva in killing the demon *Jalodhava*. After his death, the lake water was drained of and land came to be known as Kashmir after Kashyapa. The chief of the *Nagas*, the son of *Sage Kashyapa* named the valley after his father. Thus the valley that emerged from the drained lake was named after *Sage Kashyapa*. (See for details, Vogel 1926: ch. VI) Kashmir being the corrupt form of *Kashyapa-pura* or *Kashyapa-Mar*; alternatively, its name is derived from two words *Ka-shimir* (*Ka* = water, and *shimir* = desiccated).

Geological studies reveal that fossils of flora and fauna found in the valley also confirm that it was once a vast lake, vestiges of which can be seen in the entire valley in small lakes, besides the famous Dal Lake, Wular Lake (The Lake of the serpents) or the Nagin Lake. Legends have it that the Wular Lake, the largest natural fresh water lake in Asia, was the abode of *Mahapadma*, the serpent deity that could grant even impossible wishes. Interestingly, "Down to the present day the word *nāg* is used in Kashmir to indicate the source of a river or rivulet" (Vogel 1926:220), for example, Verinag (source of Jhelum River), Nilinag, Anantnag, Sukhnag, Kokarnag, and Vaishakhnag.

The physiographic features of the valley as witnessed in the peculiar formation of *karewas*, known as *odiyar* in Kashmiri language, indicate existence of a vast lake for a long duration of time. The *karewas* are raised plateau like formations with slopes separated by ravines.

Burzahom (34° 10' N; 74° 52' E), situated in one of these formations, is about 16km north-east of Srinagar City. The site can be approached from Srinagar by two routes, namely, either via Hazaratbal and Nasim Bagh or through the famous Imperial Mughal Gardens namely Chashma Shahi, Nishat Bagh and Shalimar Bagh. This site was discovered by D. Terra and Paterson, who carried out trial excavations there in 1935, which left important clues to its archaeological prospective. Literally Burzahom means the place of the birch (bark of *Betula utilis*), burnt residue of which has been found in the site during excavations.

Subsequently, the Archaeological Survey of India (ASI) conducted large scale systematic excavations at Burzahom from 1960 to 1971 under the direction of T.N. Khazanchi. The excavations revealed fourfold cultural sequence beginning with the Aceramic Neolithic followed by Ceramic Neolithic, the Megalithic and the Historical periods.

It is to be noted here that the excavated site was much disturbed, as such the precise nature of the cultural sequence as available in the unpublished data were not conclusive. However, subsequent excavations at Burzahom (1960-71) and Gufkral (1981) have provided evidences to correct the chronology and cultural sequence of Burzahom drawn earlier on the basis of vertical excavations in 1960-61. Significantly, existence of the aceramic level at Burzahom was established later by R.K. Pant (1980) which was further corroborated at another Neolithic site of Gufkral excavated by A.S.I. in 1981. The pollen diagrams drawn from the deposits from Harwan near Burzahom show evidence of the clearance of natural vegetation. The decline of pine forests from the site indicates the farming experiments of the Neolithic people in the valley (Pant et al. 1978: 282). Further, the excavation at Kanispura conducted by the ASI in 1998-99 also established an aceramic level of Neolithic culture.

Intensive survey conducted in the Jhelum Valley from Anantanag to Pampore has yielded a series of Neolithic settlements at Jayadevi-udar, Thajiwor near Anantanag, Gufkral, Begagund, Dadsar, Hariparigaom, Olchibagh, Panchgoam, Pampore, Sempur and Sombur (Pulwanma District), and Gurhuma Sangri near Wular Lake (IAR 1962-63: 9). The team of scientists of the Kashmir Palaeo Climatic Project, Physical Research Laboratory, Ahmadabad, has also noticed a number of Neolithic sites in the Valley,

notably at Pinglish, Romu, Shehpendur, Balapur (Pulwama District), Hab Shah Sahib, Hayat pur, Ralishpur, Khan Sahib, Kosh Hund, Kaneer (Bagdam District) Kriri Chak, Kulladur, Mukam Udyar, Tapribala, Wanigom, YehTeng, Gopas Udyar, Rai Teng, Kanishpur and Huin (Baramulla District), and Dragtiyund near Prang on the Srinagar-Leh Highway (Shali S.L. 1993: 61). Thus, on the basis of available account of combined researches and studies in the material cultures found in the above-mentioned sites we are in a position to present a clear-cut cultural sequence of Burzahom as follows.

The Neolithic culture at Burzahom shows various stages of evolution. The first phase designated as Aceramic Neolithic is represented by underground dwelling pits which on plan are mostly circular or rectangular and in a few examples oval also. The deposits in these pits include polished bone and stone artifacts. Besides, tools were also made of antlers and other animal horns. During this period the people subsisted on both food gathering and cereal farming.

The next stage is marked by the use of pottery in the succeeding period designated as Ceramic Neolithic, Period IIA. Three main types of pottery, all handmade, were used during this period, namely, thick course grey ware, fine grey ware, and gritty dull red ware. The main shapes noticed are globular jars and basins with disc bases, in some cases bearing mat impression indicating mat technology and improvement on fabric. Domestication of wild animals such as dog, sheep, and goat is also evidenced in this period. Existence of comparatively larger number of circular pits and pit chambers during this period is suggestive of marked growth in human population.

The next level of the Ceramic Neolithic designated as period IIB marks a distinct change as noticed in the sophistication in technology. The new tool types introduced during this period consist of double-edged picks, spindle whorls, spear-heads, copper arrowheads, harvesters, celts, and knife blades. Significantly, such items as pendants, beads, terracotta bangles, etc., suggest cultural and commercial contacts with the people of neighbouring regions of Pakistan, Tibetan Plateau and other Sub-Himalayan areas. During this period, the roofs of the dwelling pits began to be raised above the ground. Number of post holes and grooves exposed during excavations indicate considerable use of timber in structures. In the inventory of ceramics another new fabric – burnished grey ware – makes its appearance.

The succeeding Megalithic Period (Period III) had the same pattern of living and material equipment as in period IIA and IIB of Neolithic Period with the addition of megalithic menhirs and rubble masonry; hence it can be referred as an extended

Neolithic period. The Megalithic period was followed by Early Historical Period, where mud brick structures and rubble walls were exposed. As the structures of this period directly lay over the structures of the Megalithic Period, it indicates continuation of habitation at the site.

Interestingly, the Neolithic settlement of Burzahom holds its own distinctive character, hence styled the Northern Neolithic Culture, as contrasted to other Neolithic sites in India. The Northern Neolithic Culture in Kashmir shows certain common traits with the Neolithic cultures of Malpur near Akhnoor in Jammu, Sarai Khola in Potwar Plateau, Loebanr in the Swat valley, and Karuo in the Tibetan Plateau. Interestingly, the site Malpur, locally known as *Bathera* (meaning place of stone implements) located at the foot hills of Pir Panjal Range was excavated by the author in 1995-96 up to the natural soil or pebble-bed. This pebble bed indicates that the River Chenab was flowing very close to the site, which shifted later towards Akhnoor where the ASI had conducted another excavation in the Late Harappan site, Manda in 1976-77. In fact, according to Fairervis (1975: 318) the material culture from Burzahom and other similar sites suggests existence of a large Central and South Asian Neolithic culture complex that included Nepal, Tibet, Kashmir, Hunza, Baltistan, and Ladakh. Stacul (1993) has supported it on the basis of subsequent archaeological discoveries as well as his own researches in north-western area of Pakistan. The location of sites such as Kanispor and Huin on Srinagar-Barmulla highway and Dragtiyung on Srinagar-Leh highway indicates communication of the Neolithic settlers of Kashmir with those of the North Western Provinces of Pakistan, adjoining Iran and Afghanistan on the one side and with those of Ladakh, Tibet, China and Central Asia on the other side during the Neolithic period. Further, intensive scientific investigations are required to the Mughal Imperial Route connecting Kashmir through Pir Panjal Range.

Hopefully, the present report will help the scholars in settling the issue of “The Inner Asia Complex” with a view to reconstructing the various stages of the evolution of human society in South Asia, beginning with food gathering/ producing communities in surviving with new technology to the changing climatic conditions of the new age to select other promising Neolithic site in the Kashmir Valley for scientific excavations in future.

The excavations at Burzahom and Gufkral have provided interesting information on the evolution of food producing social organizations in Kashmir. The flora and fauna of Kashmir form natural resource base which primitive human society exploited in different ways – in domestication of animals and stock breeding, in tool making, and in the origin of agriculture. Geo-archaeological record unfolds that

environmental and climatic changes have profound impact on human tools, equipments, and dwellings. In the following chapters these aspects are discussed in detail.

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2.0 GEOLOGICAL SETTING AND LAND FORMATION

Geologically, around 60 million years ago in the beginning of Cenozoic Era (Palaeocene), the Valley of Kashmir was a deep basin of a Lake of some 90 m depth, 140 km length and 30 km width and was fed by the water from the melting of the glaciers, rain swollen mountains and rivers. The bedrock of this lake is made up of Triassic and Palaeozoic rocks. At some stage, perhaps in the Quaternary Period (after 1.6 million years ago), there was a breach, through the Baramulla fault and the lake drained out. The lake eventually desiccated, resulting in the formation of *Karewas*, leaving behind a fertile valley surrounded by magnificent mountains, drained by the river Jhelum (known as *Vitasta* in ancient times).

The valley of Kashmir is a boat-shaped deep basin lying between the Pir Panjal Range and the Central Himalaya Range (**Fig. 2.1**). Geographically, the area extends between 32°15' to 37°50' N and 72°40' to 82°20' E. The plains of Kashmir Valley have a length of 150 km and width 42 km in the middle. The valley is full of deodar, walnut, blue pine, willow and birch. There are plenty of small lakes as well. Kashmir valley preserves a chronological sequence of geological formations of the region which is shown in the table below:

Table: Geological formations in the Kashmir Valley

Holocene or Post-Upper Karewa Formation			
Cenozoic (Pliocene – Pleistocene)	Finely and Horizontally Laminated beds	Upper <i>Karewa</i>	South-Western, central and northern parts of the valley.
	Tilted, folded, thick fossiliferous beds.	Lower <i>Karewa</i>	South-eastern parts of the Kashmir valley
Mesozoic (Triassic - Cretaceous)	Triassic of upper division (light blue or grey tinted lime stones). Carboniferous to Triassic limestone and slates. Cambro-Silurian and Triassic to Permian Limestone.		Upper Sindh, Liddar Valley, Wardwan Valley, Gurez, Central Ladakh up to Karakoram. North West slope of Valley. South East flank of Valley.

Palaeozoic (Cambrian - Permian)	Volcanic rocks of upper carboniferous age. Palaeozoic of younger system. Most ancient fossiliferous, Cambro-Ordovician. Fossiliferous Palaeozoic slaty rocks with thin quartzite partings and unfossiliferous.		Pir Panjal Range, Mountains bordering the valley to north-west, north and north-east. Pir Panjal Liddar Valley North of alluvial part of valley stretching from north-west of Handwar to south-east of Kashmir.
Fossiliferous Cambrian rocks			

Fossiliferous Cambrian rocks are extensively exposed in the mountains of north-western Kashmir to the north of the Jhelum River. Fossiliferous Palaeozoic rocks of Kashmir are represented by a series of severely folded, ellipse-shaped and elongated patches of rocky ridges situated in the north of the alluvial part of the valley. They stretch from the north-west of Handwar to the south-east end of Kashmir where it joins the Kashmir sedimentary basin. Palaeozoic formations in the Liddar valley also show a similar folded feature.

Denudation has exposed the Cambrian and Ordovician levels. These are flanked on either side successively by thinner bands of the younger formations: the Silurian, Devonian and the carboniferous rocks. A somewhat similar outcrop is found in the Basmai anticline of the Sindh valley between Sonamarg and Kolahoi glaciers. Palaeozoic rocks have also outcropped in the synclinal basin from the Wular Lake to Titwal.

During the Carboniferous period, Kashmir witnessed a change from moderate sedimentation to a strong volcanic activity. Large portion of the valley was buried under 2100-2400m of lava and tuffs. The volcanic activity was at its peak during the Permian period, after which it suddenly diminished.

The Panjal forms the main mass of the Panjal Range and of mountains bordering the valley to its north-west, north and north-east. In several parts of Kashmir, the Panjal traps are conformably overlain by a series of the Gondwana plants bearing beds. These beds are again overlain by Permian limestone. Fossiliferous Permian carboniferous limestone formations are observed extensively in the Karakoram.

The outcrops of Palaeozoic rocks, besides incorporating a large section of geological history are of great significance in illustrating the simple type of folding and tectonics witnessed in this mountainous range.

Of the Mesozoic system, the Triassic is the best and fully represented in the valley as far as the geological formations of this time brackets are concerned. The Jurassic and Cretaceous outcrops are few and far between and they are mostly confined to the mountains of Ladakh, Zaskar and Hazara regions. A series of thick compressed blue limestone, slates and dolomites of this period is conspicuously exposed in many parts of the hills, which border the valley to its north. They form a series of picturesque escarpments and cliffs along the hills and are the best part of the landscape situated in the north of Jhelum. These rock formations are also found in the upper Sindh, Liddar, Gurez and Central Ladakh.

Pir panjal is another range where the Triassic upper division rock formations are prominently exposed in this region. Limestone is the principal component of this system. The rocks are of light blue or grey tint. Many fresh water springs like that at Acchabal, Verinag, Anantnag and Bhawan have their origin in these limestone beds located at the south-east end of the Valley. These springs are the source of the river Jhelum. The lower and the middle divisions of the Triassic formations are rich in fossils. The upper division on the other hand is largely devoid of fossils.

The *Karewas* belonging to the later phase of the Cenozoic or the early phase of the Quaternary are the most widely exposed geological formation in the Kashmir Valley. This has three distinct litho-units designated as the Lower and Upper *Karewas* and an aeolian member that caps the Upper *Karewas*. Tilted and folded at the lower part, the *Karewas* are massive sedimentary formations that dominate the landscape in the Valley. They transgress into the Pliocene and have been measured to be 2450m thick. The horizontally laminated Upper *Karewas*, which cap the Lower *Karewas* are about 200m thick. The Upper *Karewas* are further capped by un-stratified yellowish brown silt. Recent studies have designated the Lower *Karewas* as the Hirpur formation and the Upper *Karewas* as the Nagum formation (Bhat 1976) whereas the top most members

have been given a separate status, as it denotes a distinct environmental change and also aeolian transport (Pant et al, 1978).

The *Karewas* originated probably during the Pliocene times and occupies roughly half the area of the valley. Remnants of these massive lake sediments have drawn the attention of geologists, palaeobotanists and archeologists for the last 100 years. Lydekker (1883), Middlemiss (1911, 1924) Wadia (1941, 1948), Farooqui and Desai (1974), Bhatt (1976) and several other researchers have contributed a great deal in the study of these sediments and to the geology of Kashmir. Animal fossils recovered from these formations have been studied and discussed by several scholars; De Terra and Paterson (1939), Tripathi and Chandra (1962), Badam (1979), Tiwari and Kachroo (1977) etc. Micro-fossils from these sediments have been studied with special reference to their ambient ecology by Bhatia (1974) and Singh (1969, 1971). Plant fossils have been described by De Terra and Paterson (1939), Tripathi and Chandra (1962), Roy (1975), Wodehouse and De Terra (1935), Nair (1960), Singh (1963), Singh and Agrawal (1976), Vishnu Mittre (1964) etc.

Geological studies concluded that the rise of the Pir Panjal Range was responsible for impounding the primeval drainage and giving rise to a vast lake. As the Pir Panjal Range continued to rise, the lake shrank and shifted to the Himalayan flank. At some stage, the Jhelum emerged from a fault near Baramulla and was responsible for draining out the lake (**Fig. 2.2**). Before this draining out took place, the lake had accumulated a considerable volume of sediment load in the course of millions of years. These exposed lake sediments in Kashmiri are known as *Karewas*. The term gained wide recognition after it was first used by Lydekker in 1878. With the drainage of the lake, seasonal dust storms deposited a thin layer of yellow silt, probably loess over the shell bearing lakebeds. There is a general consensus among geologists that the present day lakes like the Wular, Manasbal, Anchar and the Dal are probably the remnants of the primeval lake.

The *Karewa* formation occupies nearly half of the area of the Valley (**Fig. 2.3**). It had a width ranging from 12.5 to 25 km along its south-west side and extends for a length of nearly 80km from Shopayan to Baramulla. The *Karewas* are mostly horizontally stratified deposits consisting of fine-grained sand, loam (a soil of friable nature consisting of varying proportions of clay, silt and sand), blue sandy clays with lenticular bands of gravelly conglomerate (rock composed of rounded fragments varying from small pebbles to large boulders). In some localities the finer sands and clays show laminations indicating seasonal freezing and thawing of water. Evidence of

glacial oscillations is recorded in the *Karewa* deposits. It is argued that at the end of the Ice Age, the land was covered with forests in the Kashmir Valley.

H.D.E. Terra, Teilde Chardin and T.T Patterson (1935, 1939) carried out a detailed study of the *Karewas* and other geological formation while investigating the Stone Age cultural remains and their environmental settings in the region. They were able to demonstrate, although recent studies have substantially modified their findings, the effects of glaciations and intermittent interglacial periods which in themselves were responsible for the origin and shrinkage of the lake and the formation of *Karewas*. Besides, climatic oscillations, periodic uplifts of the Panjal Range as a part of the Himalayan orogeny in the north-east also contributed towards the sedimentation process. At a later date the Jhelum emerged and actively engaged in deepening its bed. With continued erosion and uplifts, the lake water drained off and the exposed land became suitable for palaeoman to settle down in, as it offered good forest cover, easy availability of water and abundance of lithic raw-material for making stone implements. Thus, the land formation of the Kashmir Valley as discussed above is an important factor to understand the evolution of Stone Age hunter-gatherers towards the emergence of food producing/agro-pastoral communities in the valley.

The discovery of Early Stone Age tools at Pahalgam and elsewhere clearly shows that right from the Pleistocene times man lived in this area. De Terra and Patterson (1939) came across the possible existence of prehistoric remains in the valley when a well fossilized tusk fragment was found on the way to the shrine of *Baba Rafi-ud-Din* situated on an isolated hill at a height of 628ft above the valley floor. The topmost deposit yielded limbs of bovids (antelope and *Bos*) which were half fossilized. The most striking feature was that one femur bone bore marks of artificial cutting attempted by a blunt knife. They also found a patinated flake similar to the one reported from Pahalgam made of trap and reworked at a later date, from near Kargil. The earliest Stone Age tools in Kashmir had been found in the Sub-Himalayan valleys (north of Kashmir) of the Indus and its tributary, the Soan (or Sohan) in the Potwar area in northern Pakistan.

H. D. Sankalia (1969, 1975) assisted by S.L. Shali and R.K. Pant of Archeological Survey of India (ASI) undertook exploration in the Liddar valley in 1969, and recovered a massive flake and a crude hand axe from well stratified deposits dating to the second glacial and second interglacial respectively. The Prehistory Branch of the ASI recovered nine more tools from the deposits attributable to the second through third glacial periods. Sankalia further explored the region and found a patinated tool, six choppers and three scrapers from the area.

The exploratory survey by Agrawal (1981, 1982) yielded Palaeoliths from BallaPura (top terrace of the Rembiara river) in Shopiyan tehsil, District Pulwama. Besides, a well worked chopper with distinct flake scars, indicative of human knapping was also picked up from the upper reaches of the Sukhnag situated on the Srinagar-Poonch link road to the east of the Pir Panjal range. A distinct blade and burin industry has been reported from the exploration at Ballapura and Sukhnag which has an upper Palaeolithic affiliation (Agrawal D.P. 1981; 631-637). A lithic industry on jasper, silicious limestone and trap following the Upper Palaeolithic technique was discovered at Sombur which is located about 15 km south-east of Srinagar. Artefacts collected from the site demonstrate the use of prepared core technique in fabrication (Pant *et al.* 1982). It is presumed that probably this industry belongs to C.18000 BP when a palaeosol developed on the loess in response to the climatic amelioration in the valley. This microlithic tradition should have continued later into the Mesolithic times. Unfortunately no further links in this regard have been found so far and is yet to be ascertained.

In the 1980's Physical Research Laboratory (PRL) identified a new lithic industry at some of the newly explored sites like Kulladur, Bhatchak, Tapribal and Huin in Baramulla District, Khan Sahib and Hab Sahib in Badgam District. The Importance of these findings lies in the fact that the grinders and ponders which have a clear Neolithic affinity have been found in association with earlier lithic tools. Besides a lithic industry marked by huge chopper like discoidal cores, borers, flake, knives and scrapers were found associated with the typical Neolithic industry from these sites in Badgam District (Pant *et al.* 1982). Detailed examination of the tools showed that there is a succession of Stone Age industries going back to the Paleolithic times. It has also been asserted that the Neolithic culture indicates technological affinities with the preceding Stone Age culture. The palaeoclimatic researches have indicated that the period between 20000-18000 BP was the period of climatic amelioration in the valley (Pant *et al.* 1982: 37-40). It is presumed during such optimum climatic conditions, human settlements thrived in the valley as indicated by the Upper Palaeolithic sites from Sombur and other areas.

Palaeoclimatic research has indicated that during the beginning of Holocene around 10,000 BP cooler climatic conditions prevailed in the Kashmir valley. This period witnessed excessive rains resulting erosion of the land and migration of the people to sub-Himalayan region. From archaeological point of view it is also substantiated by the absence of Mesolithic industry, Palaeolithic sites or shelters may also have been lost during such climatic ravages.

The evolution of human settlement in the valley had been considerably effected due to uplift in the Pir Panjal, tectonic changes and frequent climatic oscillation. However, the higher reaches of the valley needs to be explored systematically to trace the foot prints relating to the human evolution as a tool maker and to understand the Mesolithic gap. It may be ascertained that the Neolithic culture in the valley indicates technological affinities with the preceding Stone Age cultures. However, the present conditions are not conducive for archaeological investigations to trace the various stages in the evolution of food gathering communities in the Valley. In order to understand this gap, the neighbouring regions like Ladakh and Pir Panjal were opted for multidisciplinary studies.

At the foothills of Pir Panjal near Akhnoor the Neolithic sites like Malpur (IAR 1993-94: 53-54) and Late Harappan site Manda (IAR 1976-77: 19-21) had been excavated by the ASI. The Neolithic site of Malpur in respect to the typology of tools like chisel, celt, adze, ring stone, quern, pounders, sling ball, etc. and vessels of coarse grey ware shows clear resemblances to the Burzahom but complete absence of bone tools (Fonia and Chakraborty 2007: 170-71) (Fig. 2.4, 5 & 6). Besides, the Stone Age cultures were also reported from the surrounding areas like Kathua and Basoli in Jammu and Kangra in the Himachal Pradesh. Moreover, to find out the cultural link of Burzahom with outside valley systematic archaeological explorations were conducted in Ladakh region way back in 1991 by the author, where the Palaeolithic sites of Hunderdok and Trisha Lake in the Nubra Valley have been discovered. An unfinished hand-axe (Fig. 2.7) and chopper (Fig. 2.8) were recovered from these sites (Fonia 1993: 37). These findings provide an important clue for the existence of Paleolithic culture in the Valley.

The aforementioned findings seem adequately be substantiated in light of recent archaeological and scientific studies in 2016 specially the exploration and excavation done in the Nubra Valley by ASI and the palaeo-floods study of the Nimu section of Indus River by the Wadia Institute of Himalayan Geology. The trial excavation at Triphutukla, a camping site (Fig.), located between Sasoma and Sassar la on the Karakoram Highway has yielded large numbers of microliths comprising blades, micro-blades and debitage (Fig. 2.9 & 10). Besides, numbers of animal bones along with few bone artefacts has also found from the site. The site is located near the base camp of Thulanbut-la, which is locally known as Tirumpati-la and by Yarkandis as Karwal Dawan (means frontier pass). The ^{14}C dating of the findings unearthed from the excavation goes back to 9000-8000 BCE which is further substantiated by the finding at Nimu, located near the confluence of Indus and Zaskar rivers. The charcoal samples from the Palaeo-flood sediments also fall in same timeframe and indicates an

approximate date of 9000 BCE (citation). Though, a clear picture would emerge only after further investigation is conducted in the Valley to locate a few representative sites.

Archaeological evidence at present is not sufficient to give a complete picture of Paleolithic culture in the Valley but is confined to surface collection from various sites. Neither any palaeolithic site nor shelter have been traced or excavated so far. Present conditions are not conducive for the archaeological investigation in the higher reaches of the valley.

The Neolithic remains in the Kashmir Valley are found associated with about 3m thick loess deposits of a light brown to pinkish, compacted, un-stratified and homogenous silt, formed at the top of the Karewas. Loess, the third member of the Karewa series, contains alternating multiple dark bands representing palaeosols within. In India, Kashmir is the only known region where Loess-Palaeosol sequence is reported. The Loess-Palaeosol layers are indicators of relatively stable periods of continental palaeo-climate. The thickness of Loess-Palaeosol succession varies in both the Pir Panjal and the Himalayan flanks. It has been asserted that the lake continued to be in force on the Himalayan flank till the Late Pleistocene times and loess started depositing on the side after the lake was finally drained out. Before being deposited on the Himalayan flank, the loess had started depositing on the Pir Panjal flank. These deposits have now been dated by radiocarbon to C.18000 BP for the upper most Palaeosol and the lower to C.31000 BP. The dates represent periods of major climatic oscillations in the area around Burzahom. The uppermost layer of the Palaeosol is associated with the 'Neolithic habitation' and dated to c. 5000 B.P.

The details of the Burzahom section are shown in the diagram (**Fig. 2.11**). The thickness of the exposed section is 10m, which includes the three palaeosols within the loess. It shows, from top to bottomward, an archaeological Neolithic deposit followed by three palaeosols (A, B and C) and loessic deposits. At the bottom of the section is the beginning of the Nagum Lacustrine sediment (Upper Karewa). Radiocarbon dates are marked against the deposits.

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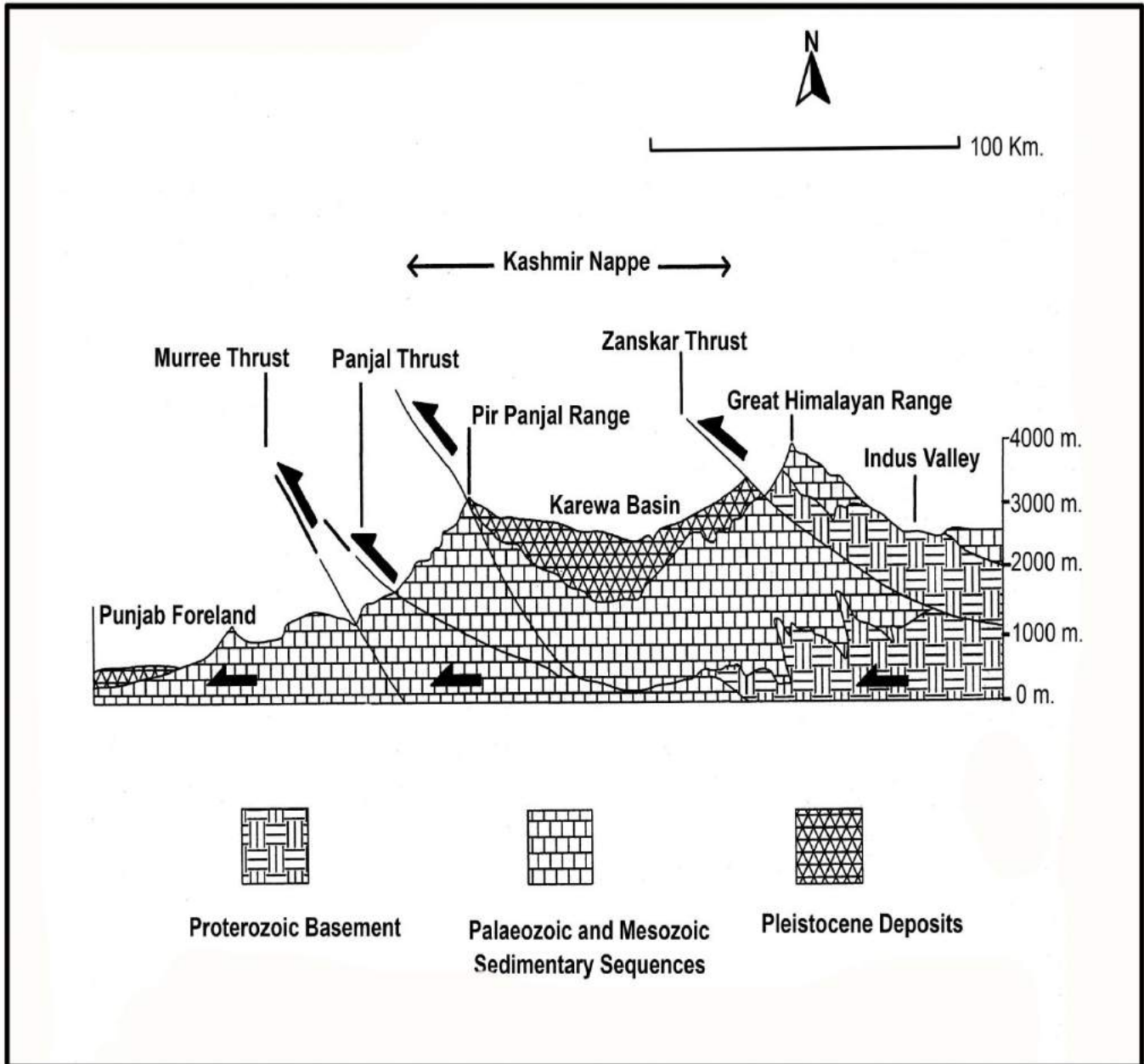


Fig. 2.1 The Differential uplift of two mountain ranges and the formation of Kashmir Depression between them (after Agrawal D.P.)

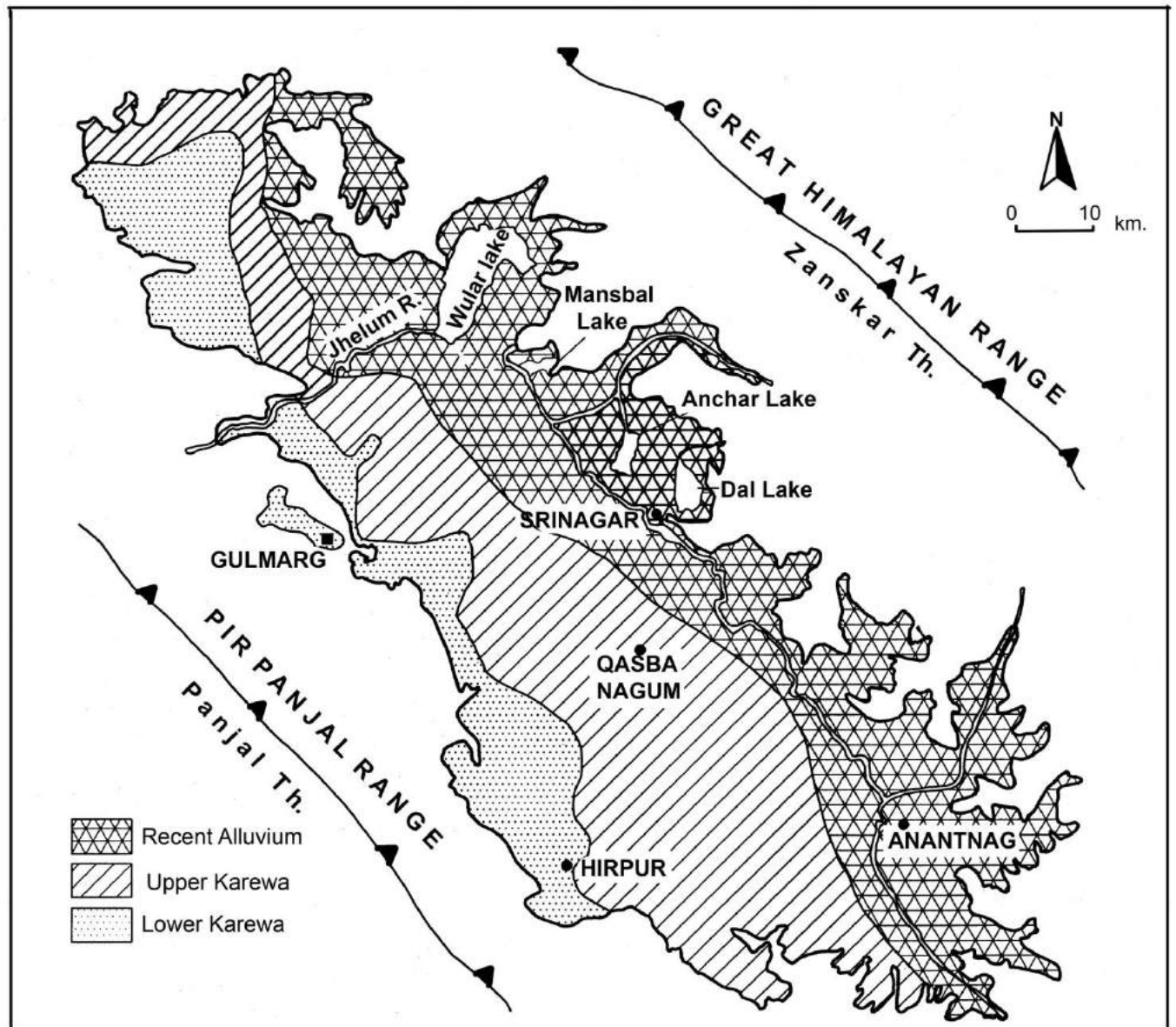


Fig. 2.2 The formation of upper and lower Karewas with the up thrust of Pir Panjal and Himalayan range (after Agrawal D.P.)

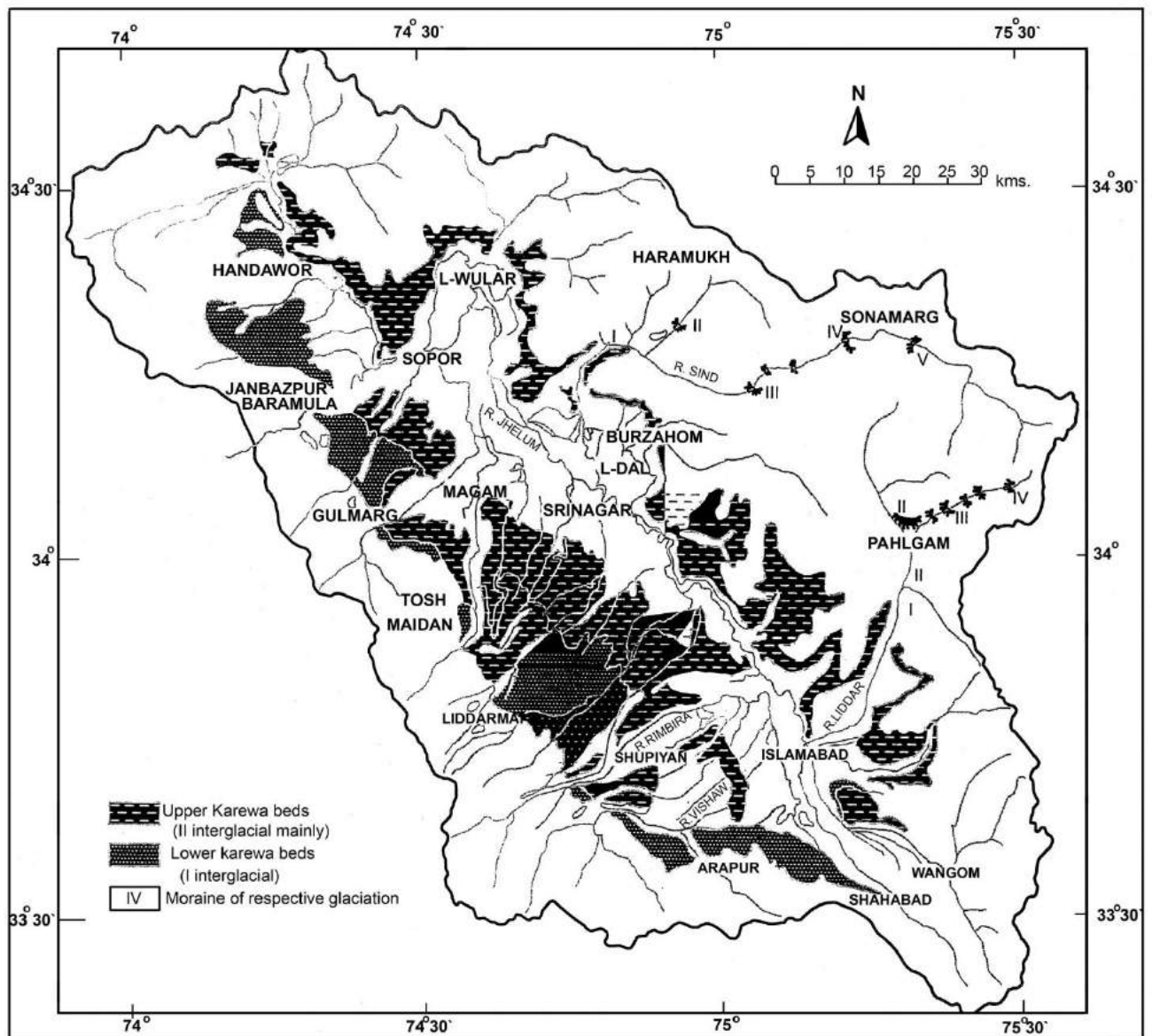


Fig. 2.3 Map showing Karewa deposit in Kashmir Valley.



Fig. 2.4 Adzes from Malpur



Fig. 2.5 Celts from Malpur



Fig. 2.6 Mace head and Sling ball from Malpur

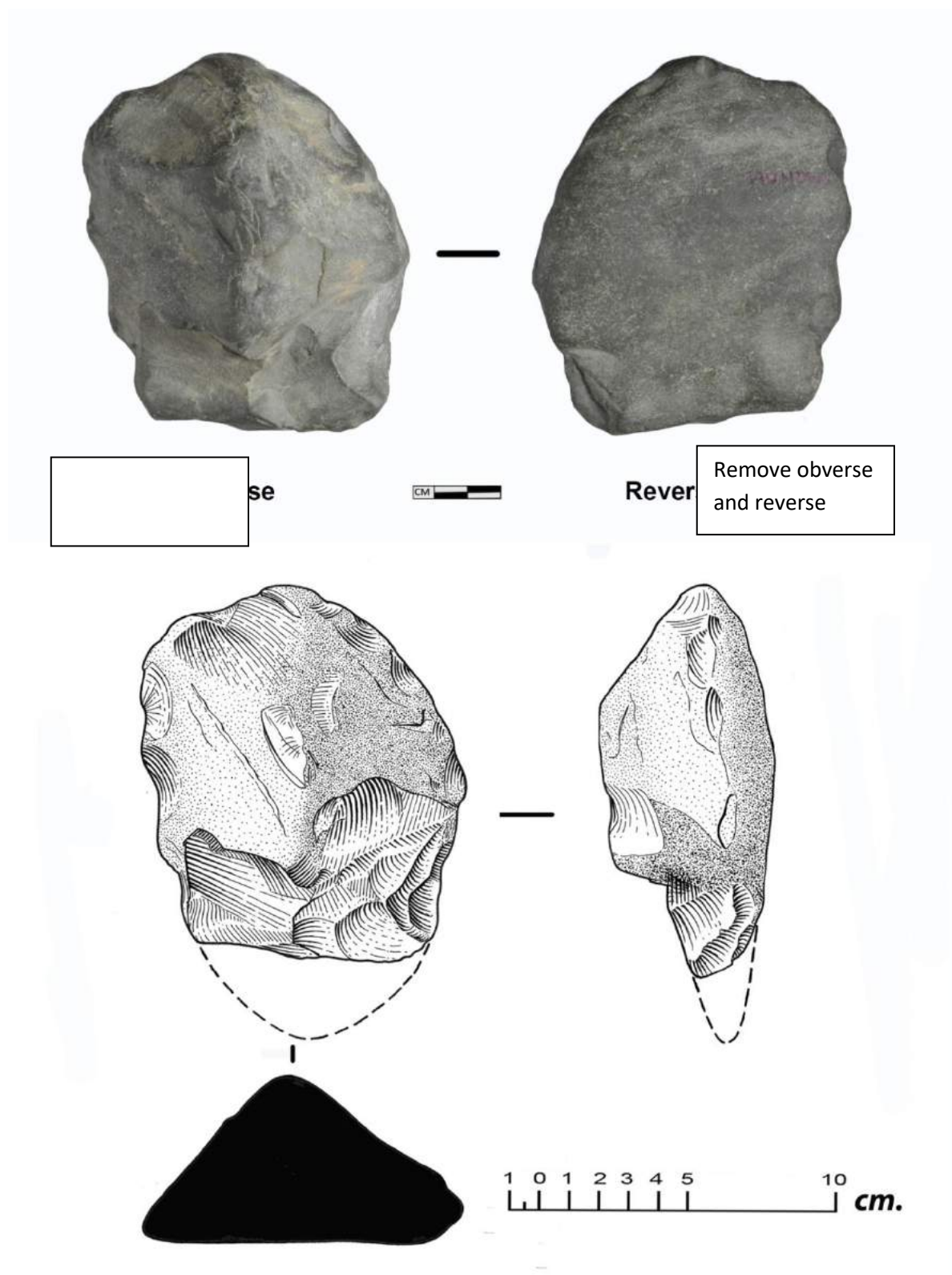


Fig. 2.7 Unfinished Palaeolithic Tool - Hunder Cave, Phyang - Dok, Nubra, Ladakh



Obverse



Reverse

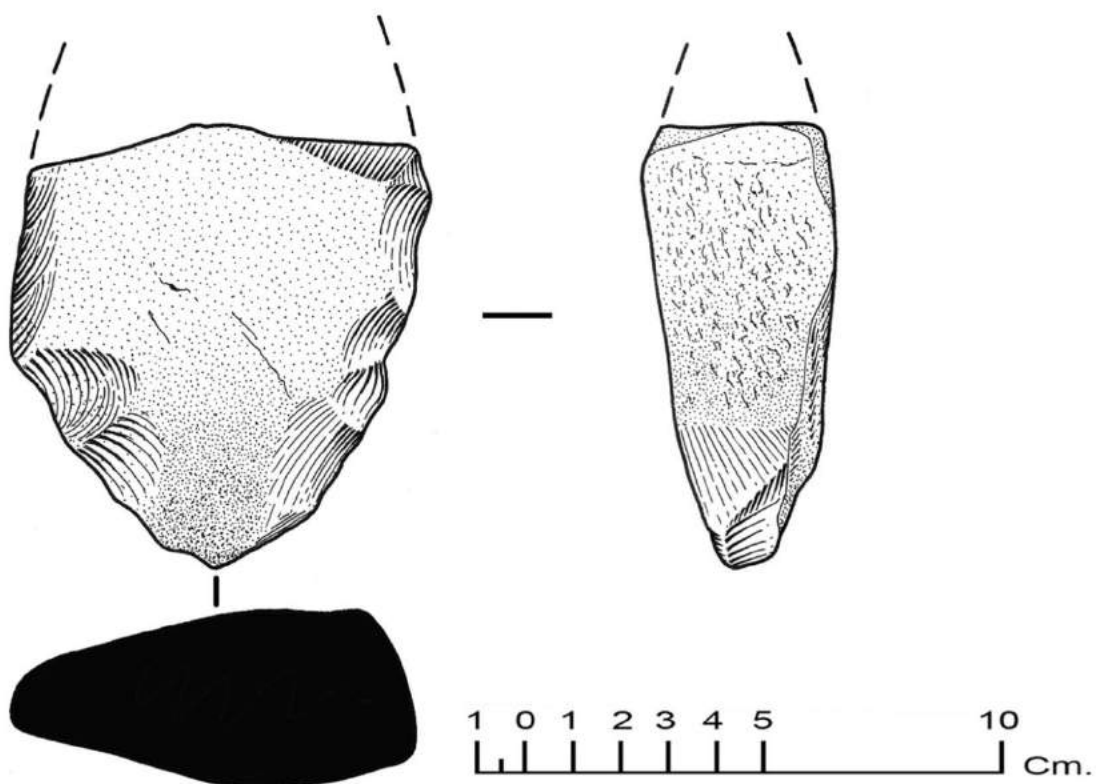


Fig. 2.8 Chopper, Trisa Lake, Nubra, Ladakh



Fig.2.9 A Camping Site, Thulanbut-la



Fig.2.10 Microliths from Thulanbut-la

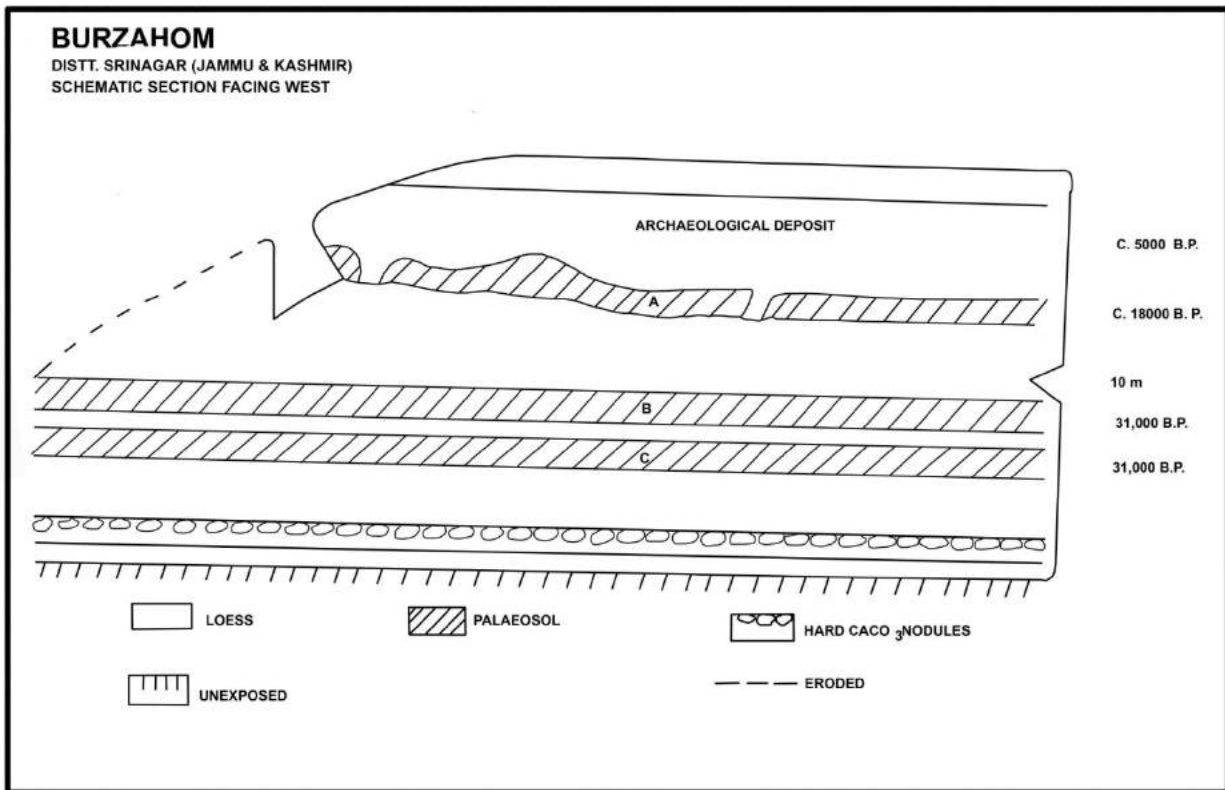


Fig.2.11 Schematic section facing west

3.0 LAYOUT AND CUTTINGS

The archaeological mound at Burzahom is situated in a unique environment set-up, occupying commanding heights of *Karewa* deposits, overlooking Mahadev Peak and Dachigam forest in the east, Pir Panjal Mountain Range and Dal Lake in the south-west, Kishtwar Mountain Range in the south-east and small streams in and around the site (**Fig. 3.1**). The River Jhelum is flowing towards the south-western part of the site. After the lake had drained out, the site became an ideal location with plenty of natural resources for early settlers, who were primarily hunters.

A great number of sites discovered in the Kashmir and Swat valley indicate that Neolithic revolution took place in the northern most part of the Indian subcontinent during early 3rd millennium BCE. This particular culture is commonly now defined as Northern Neolithic Culture because of the distinctive structural features, finding of tools in abundance in bone and stone, beads and special ritualistic practices. There are about four dozen sites which share common cultural traits in the region of South Asia, but only a few sites have been excavated so far i.e. Burzahom (IAR 1960-71). Gufkral (IAR 1982) in Kashmir, Malpur in Jammu (IAR-1993-94) and Loebanr III Kalako- deray in Swat (Stacul 1977, 1993, 1995) and Karuo in the Lancang valley in Tibetan Plateau (Chalong 1991). The first excavated site Burzahom (1960-71) has revealed a three phase evolving sequence of the Neolithic Culture, thus it remains the type site of the Northern Neolithic Culture in South Asia.

This ancient mound measures approximately about 275m wide in North-South and 425m long in East-west, covers an area of about 11.69 hectares or 29 acres (**Fig. 3.2**). Out of 29 acres of land only 0.67 acre was excavated (**Fig. 3.3**). On elevation, the mound rises to a height of 14 m, highest contour being 1612 m and lowest is 1598 m. The cultural deposit of the site is more than 4 m thick in places. The elevated mound was capped with a group of huge menhirs.

The site was discovered in 1935 by H. De Terra and T.T. Paterson of the Yale and Cambridge expedition. They conducted a trial excavation at the site (**Fig. 3.4**) and laid bare the archaeological potentialities of the site by recording a succession of three fold cultural strata and suggested for further excavation (H. De Terra and T.T. Paterson 1939: 233).

A Large scale systematic excavation was undertaken by Archaeological Survey of India in 1960-61 which was extended upto 1971. The excavation at this site revealed fourfold sequence of cultures, beginning with the Aceramic and Ceramic Neolithic

followed by Megalithic and Early Historical periods. The main criterion of periodization at Burzahom is based on structural remains. Neolithic Period I or Aceramic level is marked by underground and over-ground dwelling pits depending on climate (freezing winter and summer), whereas Neolithic Period II ceramic level has over-ground mud-platforms resting on the natural soil and at places on floors sealing the dwelling pits of previous structures of Neolithic Period I. At the end of this occupation, it appears that all the pits were filled and sealed, replaced by rectangular structure (raised mud platform) built on the surface. The Megalithic period shows a distinct change in living pattern as is indicated by rubble structures and the erection of menhirs within the grave pits. Beside, all other cultural traits of preceding Neolithic levels were carried on in this period. Megalithic period was followed by Early Historical period that could be dated around 3rd- 4th century CE.

Before starting excavations, trenches were laid out in BZH-I, BZH-II, BZH-III, BZH-IV, BZH-V and BZH-VI, but digging operations mostly continued in BZH-I, BZH-II and BZH-IV, as trial trenches were laid out in the western and south western periphery of remaining areas that did not endow with attention-grabbing results. However, the mound was excavated vertically and horizontally during the field seasons from 1960 to 1971. Consequently, the vertical dig provided the elements of long cultural sequences and horizontal excavation revealed particulars of various phase of structural activities (Fig. 3.5 & 3.6). During 1960-1961 when vertical trenches were laid on the south-eastern slope of the mound, in the initial stage, a few potsherds were found inside roughly circular or oval dwelling pits, bearing narrow mouth or opening and flat base or bottom with ashy deposit, signifying human occupation (IAR 1960-61: 11). The circular pits on periphery of the mound divulges an average size of opening diameter 1.5 m, bottom diameter 2.25 m, depth 2.57 m. The biggest pit had an opening diameter 2.74 m, bottom or base diameter 4.75 m, depth 3.95 m. Later, the deposit at the bottom was detected as seasonally washed down materials that were found together along with other antiquities, in the pit. Thus, no aceramic or pre-pottery level came into existence in the first field season.

In the following year, excavation took place in the **southern sector** of the mound on horizontal basis, running parallel to the vertical trenches, to obtain an integrated plan of the dwelling pits with their structural features. A broken pot found in an inverted position within a crescent shaped pit, stored with a bone harpoon, charred hay and burnt clay, pointing towards possibility of burning (IAR 1961-62: 17) and till then no aceramic level was ascertained. However, during this season, 16 pits were exposed, of which largest was a bell-shaped one, plastered with clay, mostly contained stone

hearths, probably for keeping warm inside or roasting killed games. A few stone hearths exposed on the ground level near the mouth of the pit, put forward shifting of dwellers to the over ground during summer. This puzzling situation was overshadowed in the next year's digging operation, when horizontal excavations ascended from the slopes towards the centre of the mound; rectangular chambers came up and started to show their original forms. Simultaneously, the pottery bearing levels gone up from the natural soil and the gap of approximately 1 m between these two horizons was found conspicuous by absence of pottery. Thus a clear picture of aceramic event started appearing before 1963 (Saar 1992: 12). This picture was confirmed first by R.K. Pant in 1980 when the existence of Aceramic Neolithic Level was established at the Neolithic sites of Kuladur (District Baramula) and Khan Sahib (District Badgam) below the Ceramic Neolithic horizons in Kashmir. The Aceramic Neolithic Level was also noticed at the sites like Huin, Malpur, Batachak, Nilnag etc. in the same region with prominent tool types like backed knives, elongated parallel-sided scrapers. (Pant 1982: 37-40). In 1982, the excavation at Gufkral by ASI had further confirmed the possibility of an Aceramic level at Burzahom.

Coming to excavation methods of the present site, it has been observed that the digging operations pursued both vertical and horizontal methods (though archaeologically every excavation follows both vertical and horizontal digging) and the best represented sections illustrating precisely from top soil to the natural soil are noticed in the horizontal digging resumed in east-west direction, section facing north (Fig. 3.7), where trenches laid out from peg D14 (East) towards C4 (West) through the mounds BZH-1, BZH-III, BZH-IV and vertical cuttings conducted in the same mounds, across north-south, section facing east where trenches were laid out from peg 0 to peg LXXVII.

Starting with the horizontal digging procedure, it has been established from the section drawings that 6 m x 6 m trenches were laid out with an interval of 1m (exterior side of a trench) and 50 cm (baulk/inside each quadrant), on the northern most part of the mound, designated as BZH-1, BZH-III, and BZH-IV cut from west to east and covers up the trenches from D14 towards C4, measuring an area of about 31.5 m, the wide section of which facing north. This section not only exposes 12 numbers of regular layers that exemplify human activities right from the Aceramic Neolithic, Ceramic Neolithic (Period IIA and IIB), Megalithic and Early Historical period, but also signifies the Neolithic evolution that took place in the Kashmir Valley during 3rd millennium BCE. These cultural sequences of present cutting yielded a significant amount of deposit, about 4.20 m, from the top caused by successive settlements at the

site from 3rd millennium BCE to Circa 3rd/4th century CE, documenting the challenging way of life from food-gathering to an early farming community, that developed as an outcome of fusion between the pastoralists and the agriculturists as result of change in climate during Neolithic period, adding together the Megalithic and Early Historical period. The exceptional findings of Neolithic level involve in its splendid craftsmanship into stone and bone tool techniques, unique architectural features like scooping out dwelling pits through very hard and compact *Karewa* or loess deposit, a distinctive system of disposal of dead and aesthetic sense in composing art style.

Among the twelve layers, nos. 12 and 11 denote the Pre-Pottery or Aceramic Neolithic level that revealed several subterranean dwelling pits within the natural hard, compact yellowish loess earth of *Karewa* deposit frequently dotted with streaks of ashes from where crude stone and bone tools, repudiate bits and pieces of few stone chips and bone fragments were also unearthed. The thickness of layer 12 varies from 0.08 to 0.68 m and layer 11 from 0.35 to 0.96 m. In layer 12, a huge square log pit is unearthed between pegs A14 to A4, containing burnt clay lumps, charcoal and wooden pieces on the floor. Outside the pit, evidence of burnt red clay, charred logs of wood and charcoal bands confirm human activities and also indicate that these were possibly used for living in the ice-cold winter season. Scooping out such square, rectangular, oval pits through hard soil involved tremendous labour and heavy duty stone tools like Celts and sharp picks, the lateral sides of which specify the fact, furthermore, pits clearly show the digging strokes of these tools, (Saar 1992: 10). A number of post holes of different sizes and shapes reported from the house-floors confirm a timber based super structures, probably roofed by locally available deciduous birch tree leaves that were very effective against blizzard. Towards the east of the section, pegs running from C14 to D14, the conspicuous presence of a large oval shaped deep dwelling pit, measuring about 4.57 m bottom diameter, opening diameter 2.74 m and bearing a depth of 3.95 m, cutting through the layer 11, sealed by layer 10, with the provision of post holes in the periphery (suggestive of a superstructure) and few landing steps, is a significant discovery (see **Fig. 3.2.6**). Most likely, for further descending up to the floor, ladders have been used. These structural patterns were also provided with side drains, though later interpreted as ghost alignments (Saar 1992: 7), again could be an authentication of dwelling intention.

Apart from dwelling pits, traces of pit chambers and storage pits of different shapes like shallow and deep rectangular, square in form, have also come across during excavations. In addition, the diggings tool unfolded the existence of wild rice grains and bones of wild animals suggesting hunting and food gathering economy of the early

settlers, who had been in the process of settled life. Occurring of excessive constructional activities, mainly scooping out pits in layer 11, retain only residue of this layer in places, as shown in the section. Successive floor levels of different shades from compact brown to grey mixed with charcoal strips are also evidenced in remaining segments of this layer, while approaching towards east from pegs A14 to C14.

The succeeding layers 10, 9A and 9, 8, 8A 7 and 6 represent Ceramic Neolithic Level or Neolithic Period-II, which marked the advent of both handmade and wheel – made earthen wares and based on that, this period is separated into two phases, Neolithic Period IIA, comprises of layer 10 only, distinguished by handmade earthen wares and Period IIB illustrated in the remaining underlain layers and manifest wheel turned pottery that signifies sophistication in technology. The pottery- bearing layer 10 is very thin, consisting of compact dark to light brown clay, infrequently interrupted with loessic-like deposit, muddle up with ash and charcoal streaks in places and reveal an average thickness of 0.05 to 0.035 m. The base of layer 10 is showing a compact floor, on which white streaks of *chunam* (lime), ash and intervening charcoal are identified and this very layer is topped by a solid floor between pegs A14 and B4. The dark brown clayey silt could be a deposition of stagnant water (IAR 1966-67: 16). Layer 9 yet again corroborates a thin deposit of *Karewa* clay and loose light grey deposit mixed with ash and charcoal, experienced lots of disturbances due to pit activity, having an average thickness of about 0.10 to 0.30m, the bottom of this layer to the western part represents floor level of a tank, dug in by the settlers of layer 8 in between pegs A14 and B4. The contributory layer 9A consists of hard, compact loessic earth with an average thickness of 0.16 to 0.25m, performed as a solid floor level.

The inhabitants of Layer 8 dug a huge tank enclosed by stone slabs on either side, one of which depicts a mesmerizing engraving of a hunting scene; the engraved side was found facing downwards. One of the slabs was fixed in layer 10 to the western side near peg B4 and the other was positioned in layer 9A on the compact earth or floor level towards peg A14. Hence, the tank somehow remained tilted. The hard and compact soil of layer 9A worked as the base of this tank. The average thickness of layer 8 varies from 0.10 to 0.25m and 8A is composed of superimposed and disintegrated floor levels that run almost parallel to layer 9. A small pit cut in layer 8 through layers 8a, 9 and 10, sealed by layer 7 that contains stone pieces, charcoal and remnants of brown soil. This layer 8 is disturbed by digging three pits between the pegs B14, A 14 and A4, otherwise it comprises of compact yellowish *karewa* soil with grey floor line. The top of layer 8 is sealed by a thick rammed floor made up of compact clay and lime and abundant bone implements and beads were recovered from this layer. Layer 7 is

composed of semi compact clay with an average thickness of 0.08 to 0.25 m, having profuse pit activity and thin lines of ashy deposits mixed with stone chips. The pits are filled with ash, stone fragments and crude bone tools. The layer 6 continued between A14 and A4 pegs towards west, retaining 0.10 to 0.30m thick deposit and merged into the base level of layer 5 that also preserved by a compact floor level.

The Megalithic Period is endorsed with layers 5, 4, 4a and 4b. The subsequent layer 5 holds 0.06 to 0.35m thick deposit of loose brownish clay occasionally intervened with compact clay, bearing stones, charcoal bits and few pieces of potsherds along with a pot of gritty red ware jutting out from section at peg B14. Beside, the presence of *chunam* (lime) floor in this layer indicates structural activities. This layer is cut near peg C14 (eastern part) through a pit belonging to the layer 4, containing animal bones. Immediately above the layer 5, layer 4 appears with loose dark grey earth associated with charcoal, stone pieces and animal bones, the approximate thickness of which ranges from 0.10 to 0.30 m, while 4A has a thickness of 0.20m to 0.29m and 4B retains 0.16 to 0.22m thickness. Layer 4 is noticed throughout the present section, interrupted with mud platform and passage, constructed by the inhabitants of Period IV, in between pegs B14 and C14 and again troubled by a large pit activity towards the eastern most part, close to peg D14, in contrary, 4A and 4B are detectable only in the eastern part in between C14 and D14 pegs, where a pit cut through layers 4A and 4B, containing rubble stones and charcoal fragments. The structural remains in the Megalithic Period are marked by rubble stone construction which made a noteworthy change from the earlier structural pattern that prevailed in the Neolithic level.

The remaining three layers 3, 2 and 1 belong to the succeeding Early Historical Period (marked as the end of human activity on the mound), Layer 3 is made up of dark brown clayey silt, intervened with compact yellow *karewa* patches between pegs A4 and B4, exposing rubbles of different sizes, the mid section of which is broader, whereas both ends are narrowing towards East and West, the average thickness of which ranges from 0.20 to 0.60 m. This particular layer incorporates structural activities like burnt earth patches on the floor level, between pegs A14 and B14, episodic with white *chunam* (lime), testifying to the incidence of fire at this level of occupation. Red ware sherds are also observed here. Beside, mud structure, passage, mud floors are evidenced between the pegs C14 and B14 and the most astounding trait of this layer is an emergence of mud brick wall reported from the western corner of the mound. The eastern part is also marked by of a large pit cutting through the layers of 4 to 10, merged with the floor level of dwelling pit of Period I. Layer 2 represents dark brown sticky earth intruded with loess-like deposits in places, could be deposited in stagnant water, the average

thickness of which varies from 0.15 to 0.35 m. The approaching Layer I is composed of light brown semi-compact earth containing rock fragments, possibly of fluvial origin and comparatively loose soil, having an average thickness that varies from 0.18 to 0.40 m. A rubble stone wall come into view stuck between layer 2 and 1, after peg B4. Layer 1 is topped by humus.

Another segment from peg no. 0 to LXXVII was exposed in course of resuming vertical excavations (1 mx1 m) running in north-south direction, facing east (**Fig. 3.8**), the total deposit of which ranges from 1.80 m (peg LIII) to 4.60 m (peg LXII), highly disturbed by pit activities. The exposed section in northern part, between pegs XII to XX incorporated layers 1 to 10 below humus, whereas layers 1 to 7 in the southern section were exposed in between pegs LXVII to LXII. The excavated area between pegs XXI and LXI is heavily disturbed by lots of pits, dump and grave-pit activities, therefore, regular layers are discontinued very frequently. In the former division of 9 pegs (XII to XX), layers 10 and 9 represent Aceramic Neolithic Level and logically layer 10 rests right over the natural soil, composed of yellow loess earth mixed with stone fragments and dark brown sticky clay. The average thickness of these two layers varies from 0.20 m to 0.45 m and 0.20 m to 0.35 respectively. A square pit measuring about 0.08 mx0.0 8m, numbered as Pit 8 is traced in between pegs XVI and XVII. The presence of rammed compact dark brown clay floor substantiates the endurance of early settlers here in the pre-pottery level. However, both the layers are disturbed towards the north, between pegs XIV to XI due to pit activities carried out by the people of Neolithic Period II B. A thick mud deposit of 0.05 m, which looked like a floor came up at the ase of layer 9.

The following Ceramic Neolithic Level IIA was represented by layer 8 showing an average thickness of 0.40 m to 0.60 m and layer 7 has an average thickness of 0.20 m to 0.50 m. These two layers incorporated pottery and were highly disturbed by diverse constructional activities. A raised mud platform, made of yellow compact *karewa* soil, measuring about 2.80 m at the base, touching the bottom of layer 8 and rises up to the top of layer 7 and has been sandwiched between two scooped out vast pits, numbered as Pit 3A and 4, between pegs XVIII and XIV, remained the major structural movement. The platform contains very little handmade pottery, ash and charcoal.

The subsequent Ceramic Neolithic Level IIB represented by layers 6, 5 and 4 made up of yellow earth with white patches(6), yellow earth having brown patches(5) and grey soil with yellowish patches(4) (as shown in drawing) indicating disintegration of floor levels. The average thickness of these layers demonstrate as 0.28 m to 0.43 m (layer 6), 0.15 m to 0.42 m (layer 5) and 0.22 m to 0.40 m(layer 4). These layers were troubled by Pit 1, Pit 3, Pit 3A and Pit 3B in between pegs XI to XX. Wheel turned

pottery became popular at this point. The forthcoming layers 3 and 2 belonged to Period III.

Layer 3 epitomizes an average thickness of 0.20 m to 0.50 m, cut by pit 1 at peg XIX and layer 2 confirms an average thickness of 0.18 m to 0.45 m, which correspond to Megalithic Period III., Pit 1 sealed by layer 2, cut through the layers 4, 5, 6 and partly 7., Remains of bones and ashy materials were uncovered from layer 3. Layer 2 comprises of loose soil with ashy material. Layer 1 belongs to the Early Historical Period and is covered by a thin deposit of humus or top soil, showing an average thickness of 0.15m to 0.40m. In the northern part of the mound, exposed layers are very narrow due to structural hubbubs, while the southern part revealed broader and almost regular layers owing to fewer disturbances.

From peg XXI to XXX, the excavated area did not encounter any aceramic layers, but the area between pegs XXXI and XXXV Period I revealed aceramic stage with irregular and wedge shaped dwelling pits numbered? as 8 and 9. The most striking innovation of the area between pegs XXV and XXIX, from Neolithic period IIB, is the presence of a human grave-pit, numbered as grave-pit 2, cut in layer 6 and it was observed that after keeping the dead body, the pit was filled with same earth. The grave-pit yielded a human burial in crouching position and a menhir is fixed there that goes up to the top of the mound. The layers 5 and 4 on its southern part yielded full pots between pegs XXXIII and XXXIV. The area falling in between pegs XXXVI to XLV has three dwelling pits belonging to Period I, dug out in the natural soil, numbered as 4, 10 and 6 from north to south.. The upper part of pit 10 is found disturbed due to later pit (Pit 7) activity,. Between pegs XLVI and L a large dwelling cavity of Period I, filled with yellow soil, having a broad bottom that measures about 3 m and narrow opening of approximately 1.80 m, sealed by layer 5 came out and figured as Pit 1.

The segment flanked by pegs LI to LXV exposed two large pits, the deepest one (about 2 m depth), bearing steps to go up, is shown as pit 2, located in the southern side, sealed by floor of layer 7 at peg LXII and the other has a depth of 1.2 m, sealed by debris of the dump pit at peg LX . There is a compact mud patch on top of this pit which is sealed by layer 4 near peg LV. Both the pits contain loose ashy soil and ashy patches. The most exciting finding in the southern side is a rubble wall, 2 courses of which are exposed in layer 4 and 2 courses fall in layer 3. This wall is sealed by layer 2, showing a thickness of 0.50 m belongs to the Megalithic Period. Next comes layer 1, having a thickness of about 0.10 m corresponds to the Historical Period. The compositions of both the layers 2 and 1 illustrate dark patches of ashy clay mixed with red ware sherds. Layer 1 is topped by nearly 0.10 m thick humus.

The area from peg LXVII to LXXVII reveals a gentle slope and the layer 7 is found running towards southern slope just below peg LXVII and merged there. Beneath this, pit materials are noticed up to peg LXXVII.

These two aforementioned sections, cutting through the mounds BZH-1, BZH-III, and BZH-IV, facing north and east, established the cultural sequences of Burzahom Neolithic, starting from food-gathering to early food producing economy through various phases of evolution. It confirms, three phase evolving sequence of Neolithic Culture, labeled as Period I, Period IIA and IIB, beside Megalithic (Period III) and Early Historical (Period IV) occurrences. Period I is designated as the Aceramic Level and Period IIA and IIB are christened as Ceramic Levels of Neolithic Cultures.

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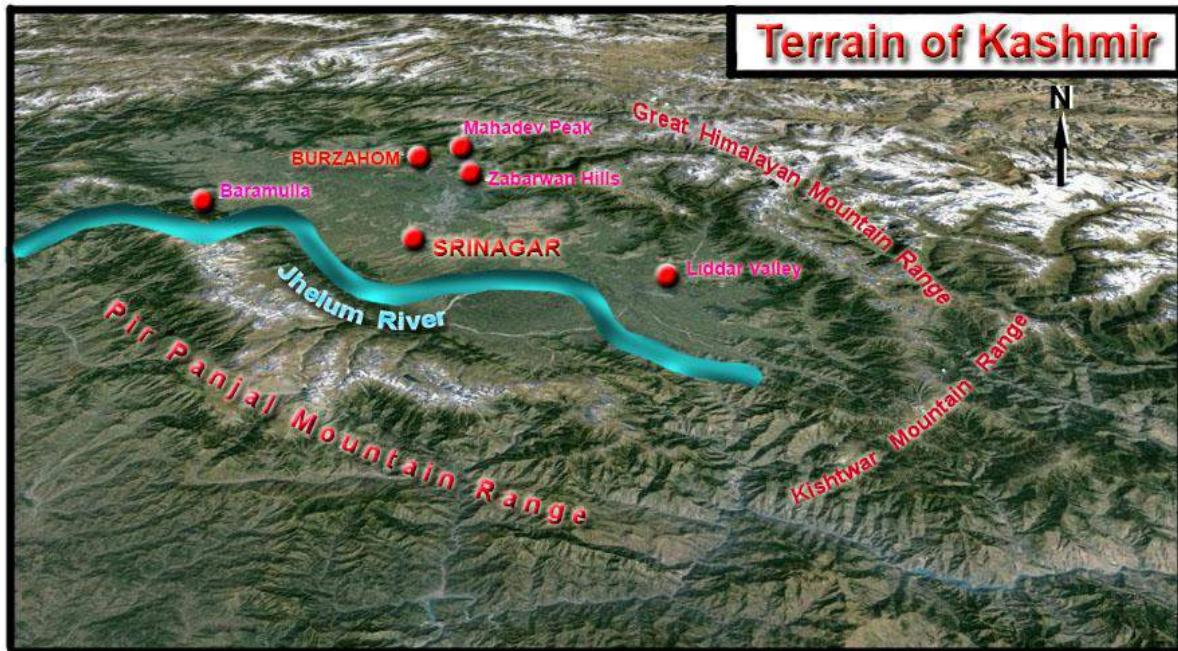


Fig. 3.1

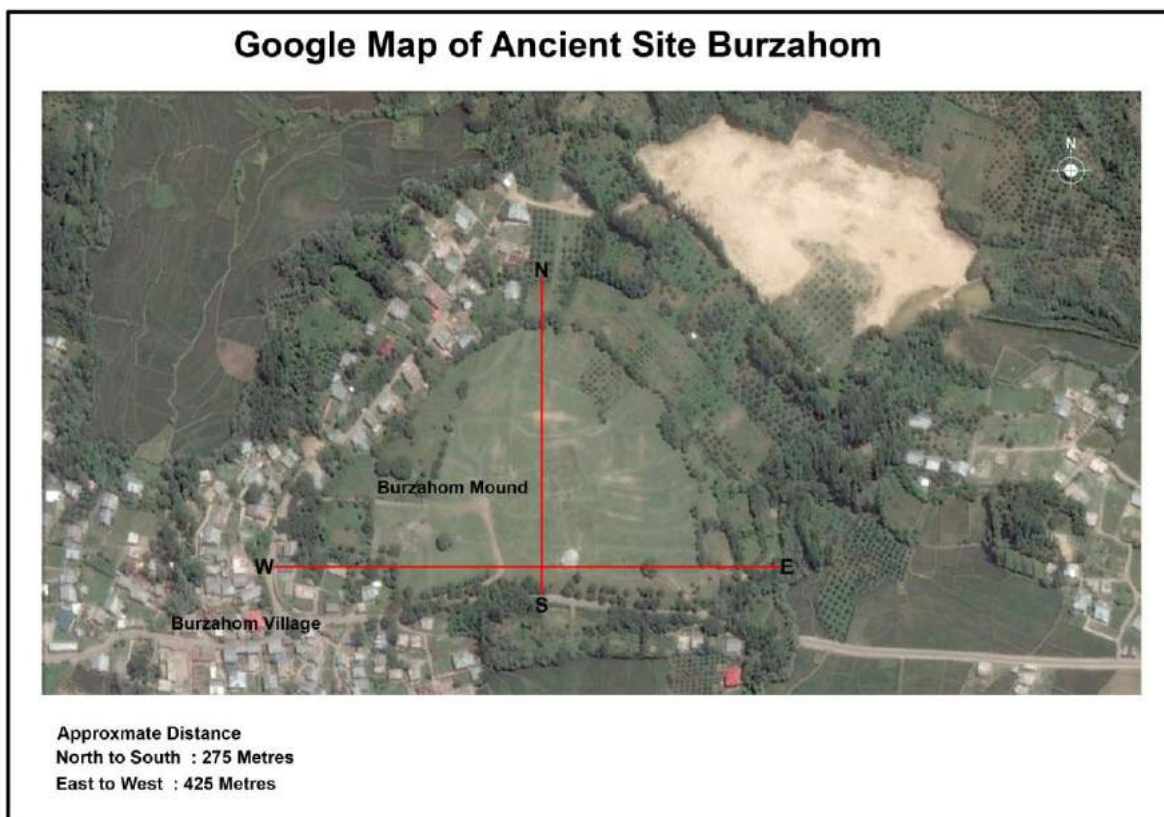


Fig. 3.2

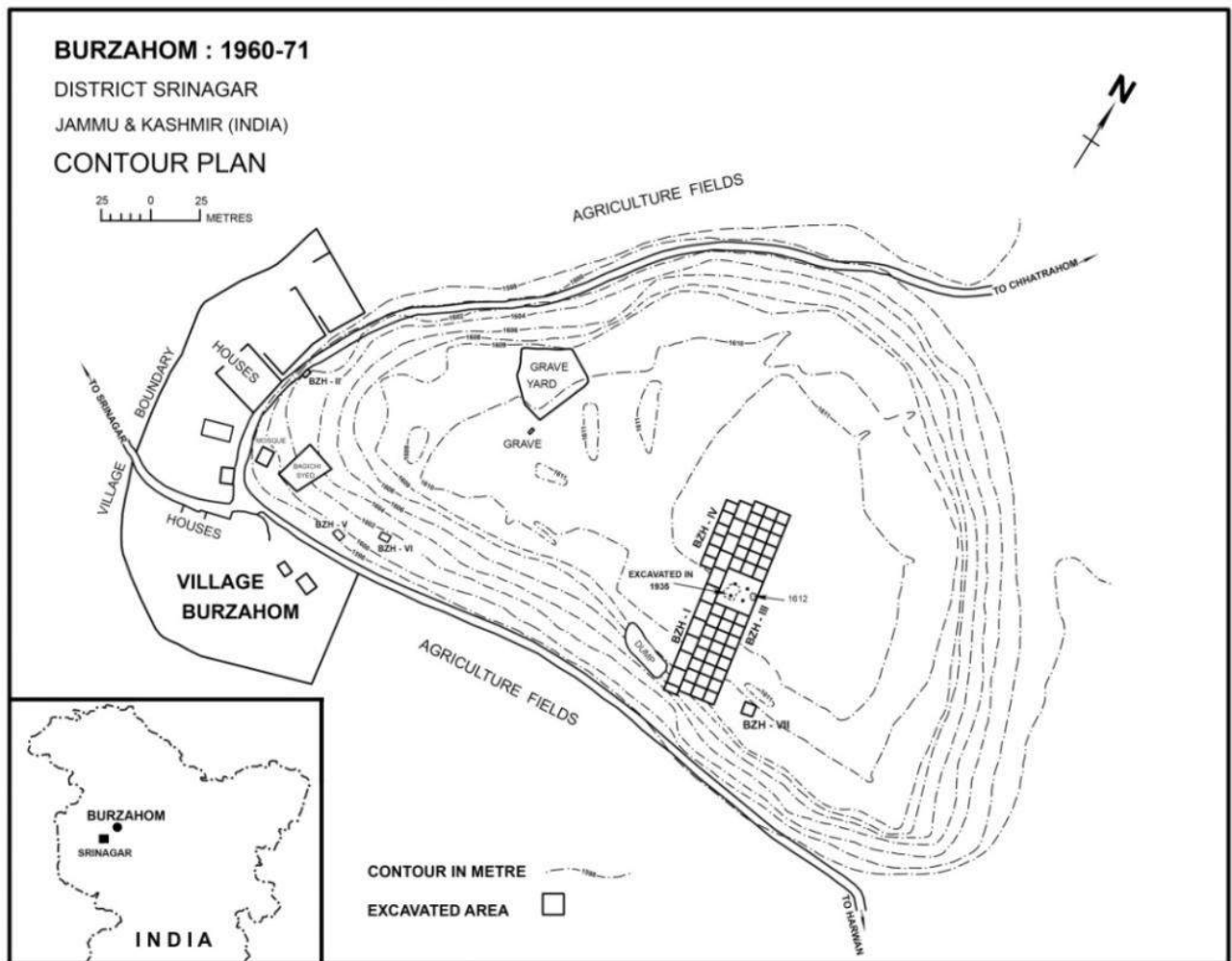


Fig. 3.3

3.1 CULTURAL SEQUENCE

The first period is designated as Aceramic Neolithic horizon represented by either circular or oval dwelling pits or pit chambers on the slope of the mound, frequently surrounded by post holes. In addition to circular pits, a number of shallow (storage) pits 0.60 m to 0.90 m in diameter were found close to some chambers and these pits had yielded animal bones and coincidentally pottery (IAR 1964-65). This phenomenon is also noticed at the Neolithic settlements of the excavated sites like Gufkral in Kashmir Valley, Karuo in Tibetan Plateau that lies about 3000 m above sea-level and at Loebnr, Kalako-deray, in Swat valley. Sometimes steps and arched corridors are also found in the circular pits due to superimposition of pits cutting into each other. These pits and pit chambers might have been used for different functions (Chaolong 199: 12-35). The dwelling pits were cut into the hard, yellowish, compact loess silt, (unscathed by any human activities before) and their floors were often painted with red ochre, few offered steps-like structures, though the illustrated sections did not provide red ochre paintings on the house-floors. The pit chambers are square as well as rectangle in shape, which were traceable all over the mound. However, the rectangular chambers were devoid of ceramics. Only rectangular and square pits with post holes were utilized for residential purposes (Agrawal 1981: 103). It was found that 96% of the total circular pits were devoid of pottery and stratigraphically associated with rectangular chambers. The remaining circular pits were clustered only along the periphery of the mound where later materials intrude by coincidence. Thus, from the preliminary excavations potsherds were found in the dwelling pits along with other materials. According to S.S. Saar, one of the team members of Burzahom Excavation, the pits found clustered on the fringe of the mound suggests an arrangement of cemetery of period I (Saar 1992: 12).

The pit deposits yielded polished implements of stone and artifacts of bone& antler. The stone tools like hoe and pick utilized for digging pits and making holes in hard soils was manufactured on Himalayan trap rock. Other implements like axe, adze and chisel were used for shaping and cutting of soft material. Stone knives were probably used for preparing skins of animals from which clothes were made. Thus, the stone implements were used for multipurpose activities due to their hardness. As far as the bone objects are concerned they were fashioned on bones of goat, sheep and stag. A variety of sharp points of bone in small, medium and large sizes were found to be utilized for making holes through animal skin. Needles were used for stitching and such kind of work. Large bone points were used for buttoning up coats made out of animals skins. Long and thin awls and scrapers were used for preparing skins for

clothing. Hunting and fishing tools like spears, arrowheads and harpoons were also discovered. No burial either human or animal have been unearthed from this period.

In the succeeding Period IIA i.e. the Ceramic Neolithic level, pottery began to be used. The inhabitants continued to live in the similar type of subterranean pits and square chambers, some of which had alcoves in the side walls. Among the cultural equipments, items from the previous period continued with the additions of harpoons, needles (with or without eyes), awls, arrowheads and miscellaneous bone objects such as chisels and hoes and stone adzes.. The repeated manufacturing of stone and bone tools reflects the capacity and technical knowhow of the people in nourishing their economy in a balanced manner. It may be mentioned here that the percentage of domesticated animal bones, including cattle and dog in addition to sheep and goat, shows a progressive increase, while the percentage of wild animal in the assemblage shows slow decline. this would point out that the subsistence of Neolithic people primarily depended on hunting, fishing and cereal farming especially cultivation of wheat, barley and lentils.

With the introduction of food production, a need arose for storage which indirectly led the ancient Kashmiris to invent various kinds of handmade earthen wares. Metal objects do not seem to have been used by these early farming communities. Among the principal wares, mention may be made of thick coarse grey ware, fine grey ware and gritty dull red ware. The thick grey ware was predominant. The main shapes include globular jars, bowls, and basins, all of which show disc bases that often bear mat impressions. Giorgio Stacul opined that stratigraphically, the large, deep pits were used as dwelling and working places, some others were employed as granaries, while small cavities retaining miniature vessels may attest ritual functions (Stacul 2005: 79).

The last phase of this Neolithic culture, termed as Period IIB marks a distinct change from the previous two stages. Favorable climatic condition preferred people to stay above the ground. During this period, the subsistence economy had undergone a progressive change. Entire herds of sheep, goat, cattle, dog were now domesticated. Tools began to be made in large numbers with a better finish, which indicates an increasing specialized craft industry. New types of sophisticated tools were introduced like small sized bone points, needles, double edged picks, double edged points for making woolen garments, and spindle whorls, harvesters (both rectangular and semi circular in stone and bone). Other cultural materials such as pendant or bead of light green jade, terracotta bangles, cowries, shells, etc. suggest that the Neolithic people of this period started to lead a settled life.

Furthermore, a new ware called burnished grey ware was used in addition to the existing ones. The main shapes are high necked globular jars, bowl and basins. The most important find of this period is a wheel made vase of orange slipped ware with a horned figure painted in black between the neck and shoulder. The painting demonstrates a wild goat of black color with long horns and hanging ears. The shape and design of the pot resemble Pre- Harappan Kot Diji type. From upper level of this Period a wheel made red ware pot containing 950 carnelian and agate beads was recovered. This very evidence also shows their contact with the contemporary Harappans. From this period, copper implements, such as, arrowheads, celts, bangles, spearheads, knife-blade and rings were also unearthed indicating trade links with the Harappans.

Other notable finds of this period are two engraved stone slabs found fixed in a rectangular structure facing downwards, suggesting acquaintance of art. One of them depicts a hunting scene while the other shows an incomplete pattern generally identified as tectiform (Pande 1972, 1973). The lower register of hunting scene depicts a body of stag being pierced with a spear by a person when another person is shooting an arrow at the animal from the front. In the upper register a dog and two suns have been engraved. There are controversies regarding the depiction of male or female person. Whatever may be, it is clear that hunting played a significant role in the life of these people.

Seven human burials, both primary and secondary throw light on the funerary practices and beliefs of this Period. The study of dental wear patterns of the skeletons revealed that the Neolithic people of Burzahom had a very coarse and rough diet, which is consistent with their subsistence economy. On the ethnic side, the analysis of morphometric details and indices show that the Burzahom skulls are closer to the mature Harappan skulls from Cemetery R 37 (Sharma 1967). Examples of animal burials were also found in this period. In one such case, an animal burial with fragmentary bones of wild dogs and two antlers of *barasingha* was also exposed.

Period III ushered an era of Megalithic tradition at Burzahom, signifying a gradual transition between the Neolithic and Megalithic phases. The settlers of this very period erected large stone menhirs in honor of their dead ones. The megalithic people of Burzahom, remained a separate group, who had distinct cultures of their cultivation, practised iron and copper smelting and used fast wheel. Stratigraphically, the arrival of this fresh band of people at this site, which was already inhabited by Neolithic people, reflects betterment in technological evolution. It appears that both the Neolithic

and Megalithic people got assimilated in a spirit of give and take policy as evidenced by the recovery of artifacts and pottery from early megalithic levels.

Handmade pottery particularly burnished grey ware, harpoons, ring stones, bone tools and stone tools continued, though they do not display the refinement of mature Neolithic ones. A notable addition in pottery was the Wheel turned dull red ware. Carnelian, agate, wooden beads and terracotta bangles were the ornaments of this period. Weaving of finer woolen clothes had started. The structures of this period were generally built of mud and rubble with wattle and daub walls. Stone platform sort of structures made with rubble masonry were also recovered. At Burzahom not much of the area pertaining to the Megalithic period was subjected to excavation.

Megalithic Period was followed by Early Historical Period, representing mud brick structures and rubble wall. As the structures of this period lay directly over those of the Megalithic Period, it indicates continuation of habitation at the site without any break. Pottery of this period was predominantly wheel made red ware. Some of the pots show impressed designs and *mithuna* figures in relief. Other finds include iron nails, wires, arrow-heads, hop-scotches etc. The deposit of this period could be dated around 3rd/4th century CE.

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3.2 STRUCTURAL REMAINS AND FEATURES

Burzahom being the first habitation site of its kind in the Kashmir Valley was systematically and extensively excavated by Archaeological Survey of India(ASI) from 1960-1971 on the basis of stratified cultural deposits. To establish the cultural sequence of the site, vertical excavation was conducted from 1960 to 1969 (Fig. 3.2.1). The result of a few strokes of spade was exciting and fruitful which unearthed earliest structural evidence of dwelling pattern, after the lakes were dried up and the soil became suitable for habitation in the valley. During the first season of excavation, a series of circular or oval pits with flat bottom were unearthed (Fig. 3.2.2). The ashy deposits in the pits indicated the human occupation. The earliest structural features were characterized by dwelling pits. These dwelling pits were dug into natural soil i.e. Loessic (*Karewa*) deposits by means of long stone celts as evidenced by tell-tale marks on their sides. The size of the pits, including the depth, varied according to requirements of the family. The depth of the pits varied from 1 to 1.5 m, the top portion being narrow and bottom was usually broad and flat (Fig. 3.2.3). The conjectural drawing of such a dwelling pit is shown in figure 3.2.4 and figure 3.2.5. Some ashy deposits were also noticed signifying human occupation. Some other features of the pits were also noticed during excavation which includes provision of landing steps in deep pit (Fig. 3.2.6), a few niches and as small arched corridor plastered with mud (Fig.3.2.7). The occurrence of charred reeds and post-holes, provide evidence of roofing arrangement to protect them against the weather.

With a view to understand the integrated plan of the dwelling pits and their structural features, the vertical trenches were further extended horizontally during the season 1961- 1962. About sixteen pits all belonging to Period-I were excavated. The largest pit (Fig. 3.2.8) measured 2.74 m at the top, 4.57 m at bottom and 3.96m in depth. Excavations at the site exposed about forty five pit chambers and thirty seven circular pits. The dwelling pits of period-I (Fig. 3.2.9) were invariably cut into *Karewa* soil, narrow at the top and wide at the bottom with flat floor and side walls plastered with mud. The landing steps in the deeper pits only upto certain part of the depth indicate the use of ladder for further descent. Post- holes at the mouth of the pits suggest the provision of perishable superstructure, stone hearth and small sized storage pits on the ground level also indicate to an open air provision during the summer season (Fig. 3.2.10).

In the succeeding period i.e. Ceramic Neolithic IIA, the inhabitants also continued using the subterranean pits and chambers with little modifications. The dwelling pits of Period-I were reused by widening the sides, as indicated by the pit

floors showing different levels of occupation (Fig 3.2.11). Excavation further suggests that the rectangular or squarish chambers were found in the central part of the settlement, however, the circular dwelling pits on the periphery (Fig. 3.2.12). This system of planned layout suggests a clan type of Kinship group. The planned layout and development of various structural features are shown in the schematic drawing (Fig. 3.2.13).

Apart from the circular and oval pits, pit chambers were also found. These were shallower, rectangular or squarish in plan with larger dimensions. These structures were found on the north of the site. Excavation revealed that an imposing pit, rectangular on plan (Fig. 3.2.14) extended in three trenches measuring 6.40mx7.00m depth being 1.5m. A hearth circular on plan was located near the centre of pit. A noteworthy feature of the pit, however, was a shallow drain running all around the periphery. Within the pit, a group of post-holes and storage places were found. The post-holes clearly suggest a timber superstructure for roofing purposes, as testified by a sizable quantity of wooden material found in one of the post-holes. It might have been the residence of the local chief. In one of the pits, deep and wide post-holes containing charred pieces of wood were found identified as pine wood (*pinus*).

Pollen diagrams from Harwan near the site have furnished evidence for a three stage disturbance of natural vegetation as shown by the decline and appearance of pine-forest. The clearance of these at one stage is thought to be related to the farming experiments of the Neolithic settlers in the valley (Pant *et al.* 1978). The roof was provided with a layer of birch (bark of *betula*) and hay, charred remains of which were found at the site. Birch is a very effective roofing material to protect against the local weather of harsh winter. Even the village Burzahom still indicates the importance of the birch and remained as a main supply centre of birch to the nearby places in the valley.

Towards the north of the megalithic complex, a series of shallow dwelling pits and pit chambers were found which were smaller and shallower. The structural patterns clearly indicate that these were provided with post holes, besides clay and stone lined hearths (Fig. 3.2.15). The significant finding was also the stone querns (a primitive hand mill for grinding grain) with the pit chamber. This suggests the early food processing technique in the valley during Neolithic period.

In the succeeding Period IIB, Neolithic dwelling pits of period I were filled up and rammed with red ochre and used as ground floor under the changed structural pattern. The use of red ochre as coloring material is noticed all over the site. Successive floor levels of this period composed of *Karewa* soil was excavated in the cutting.

Changes in environment brought changes in tools and structural pattern.. Apart from mud platform and mud walls, evidence of community centre was also noticed. The floor levels had series of post holes indicating provision for a covering superstructure. A series of 45 post holes were found at one of the largest areas of the floor level measuring 3.96 mx1.21 m at a depth of 2.13 m below the surface (Fig. 3.2.16). The evidence of a cluster of post holes in close proximity to each other clearly suggest a community centre provided with an imposing superstructure with birch and hay as roofing material. This shows advancement in life style and dwelling pattern, since such pattern was lacking in period-I, which was mainly characterized by underground dwelling pits and chambers. There is provision of hearth both of clay and stone lined (Fig. 3.2.17). Querns and mullers were found in these structures. Mid level of this period perhaps witnessed a fire incident, since a thick charcoal and ashy layer was noticed. Excavation also exposed mud-platform with partitions and storage pits and house floors with post holes (Fig.3.2.18) which suggest use of timber superstructure.

Period-III was marked by an intrusion of new ideas into the site witnessed by deep and wide pits cut into the underlying floor-levels of Period-II for erecting megalithic structures. At this stage a rubble wall (Fig. 3.2.19) was built over a dwelling pit. Thus the structural remains during the Megalithic Period-III are marked by rubble stone constructions which are a noteworthy change from the earlier type of construction. Remains of a rubble built community centre in with imposing superstructure were also found which has its own importance probably indicating the dwelling of the tribal chief. This period is also characterized by the massive megalithic complex represented by menhirs. Menhirs are free standing stones, massive, tall and weighing in tons. The cultural sequence shows that these stones were erected towards the end of the Neolithic period. Here only six stones seem to be in position, five vertical, and a sixth one lying flat. If all are put together, they form a semi-circle. Helmut de Terra (1942) has given detailed description of these Menhirs in his article, "*The Megaliths of Bursahom, Kashmir, a New Pre-historic Civilization, from India*". The megaliths are arranged in such a form as to suggest a "cromlech" type of structure i.e. a centre group around which are found one or two alignments of stones (Fig. 3.2.20). The centre group consists of three upright megalithic and one flat slab lying nearby (Fig. 3.2.21).

Megalithic period was followed by Early Historical period, where mud brick structures and rubble walls were unearthed (Fig.3.2.22).

To Sumup the excavations at Burzahom revealed fourfold cultural sequences beginning with the Aceramic Neolithic (Period I), Ceramic Neolithic (Period IIA&IIB), followed by the Megalithic (Period III) and Historical times (Period IV), essentially

based on the structural remains and features. The Aceramic Neolithic Period I witnessed underground and over-ground dwelling pits that continued up to Ceramic Neolithic period- IIA whereas the Ceramic Neolithic Period-IIB incorporated over ground raised mud platforms, resting on natural soil and solid floors, the subsequent periods Megalithic and Historical revealed rubble stone walls, erection of Menhirs and mud brick structures etc. Thus climate played a significant role in terms of structural activities recorded at Burzahom. These structural amendments not only made impact on the living pattern of the early inhabitants, but also influenced the techno-typology of the total material culture, such as, ceramics, stone, bone, copper and iron tools of this very site from time to time.

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Helmut de Terra. 1942. The Megalithic of Burzahom, Kashmir, a New Pre historic civilization from India. In; *Proceedings of the American Philosophical Society*, Vol. 85, No. 5, pp. 483-504.

Pant, R.K, Agarwal, D.P and Krishnamurty, R.V. 1978. Scanning Electron microscope and other studies on the karewa beds, Kashmir, India. In: W.B. Wallaley (ed.) *Scanning Electron Microscopic in the study and sediments*. pp. 275-82. Norwich: Geo Abstracts.

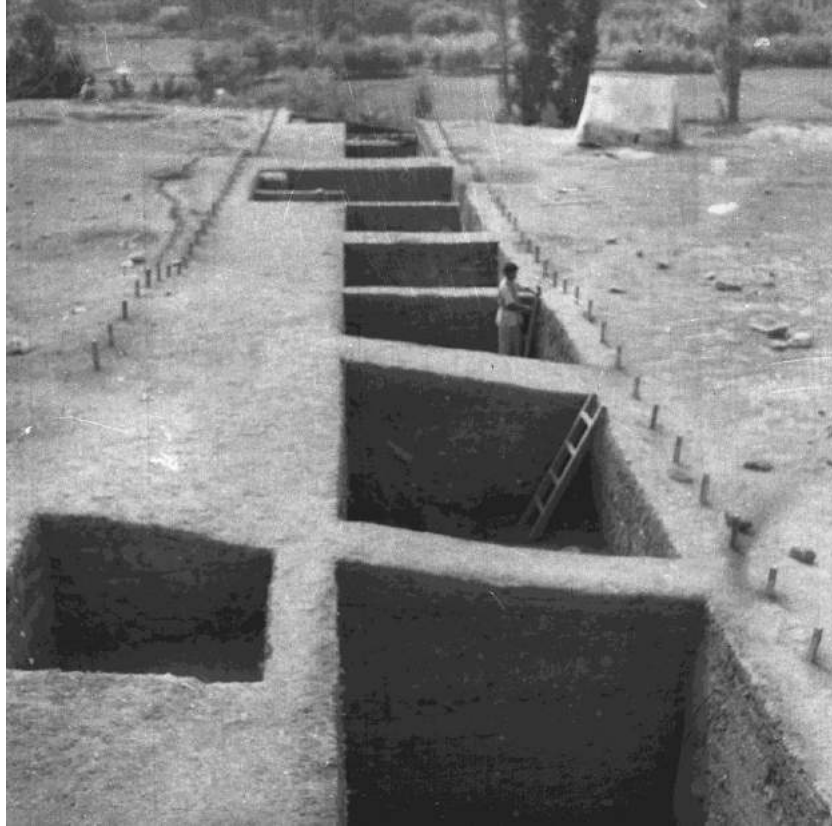


Fig.3.2.1 General view of the vertical trenches.



Fig. 3.2.2 Dwelling pits with flat bottom.

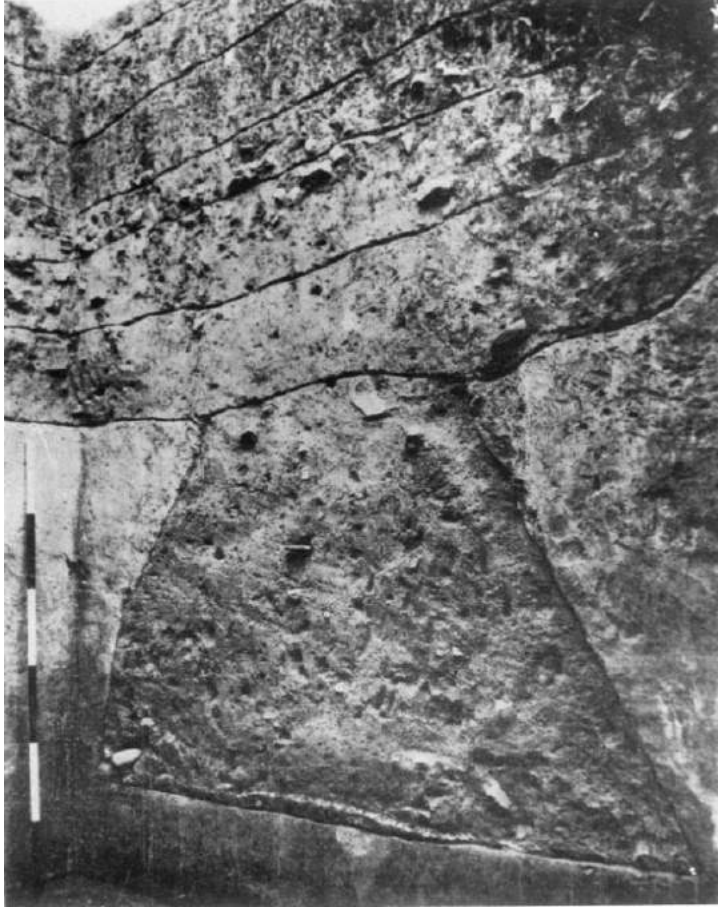


Fig. 3.2.3 Circular or oval dwelling pit with flat bottom.

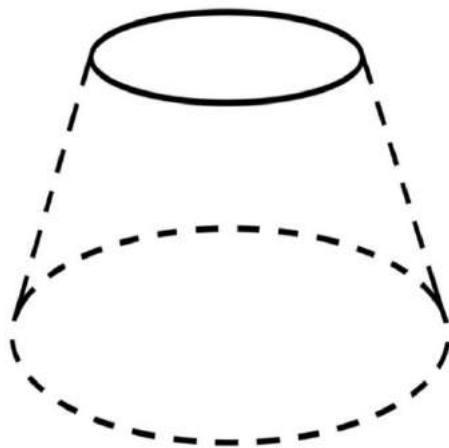


Fig. 3.2.4 Conjectural drawing of dwelling pit.

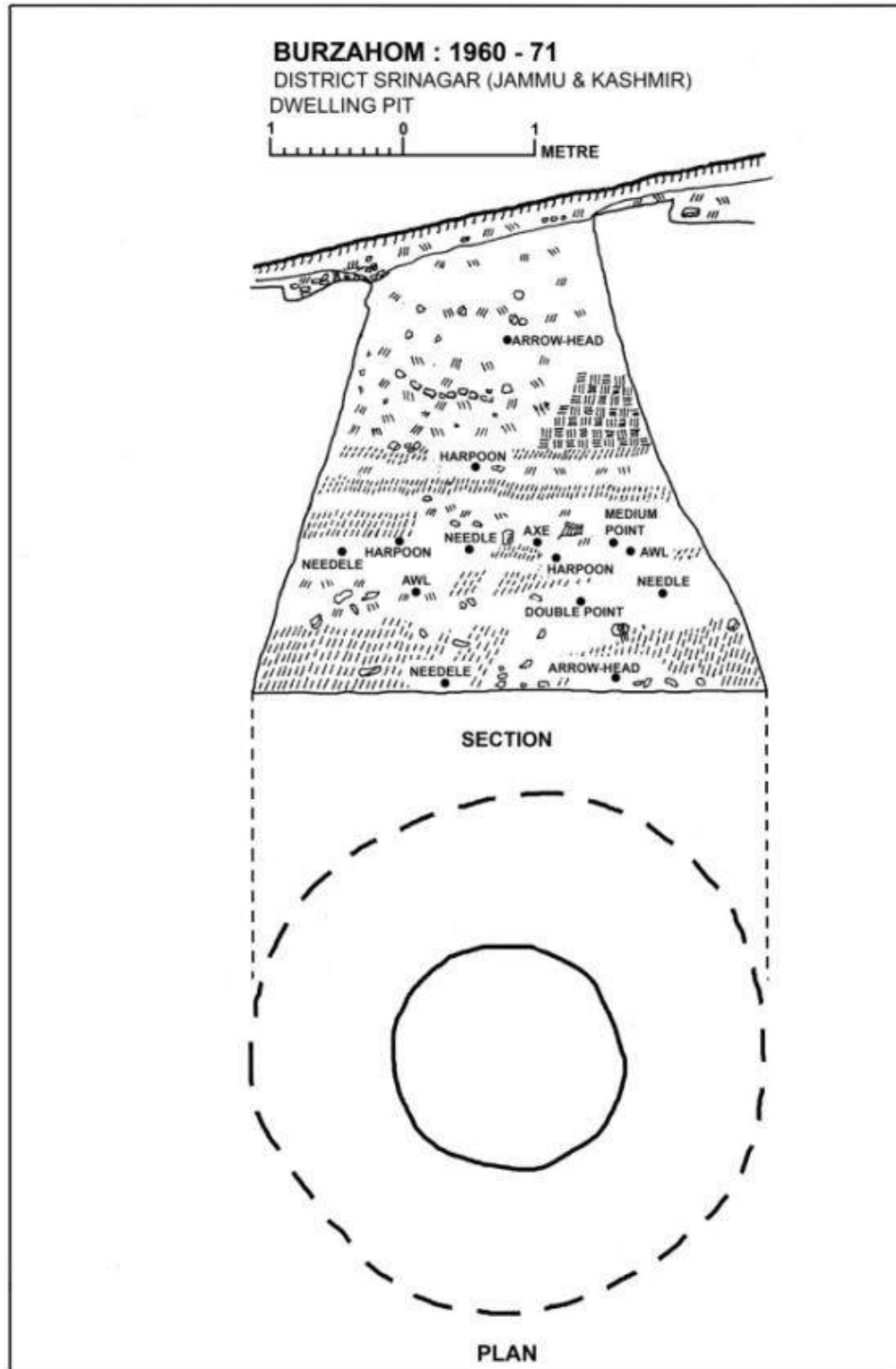


Fig. 3.2.5 Plan and Section drawing of dwelling pit.

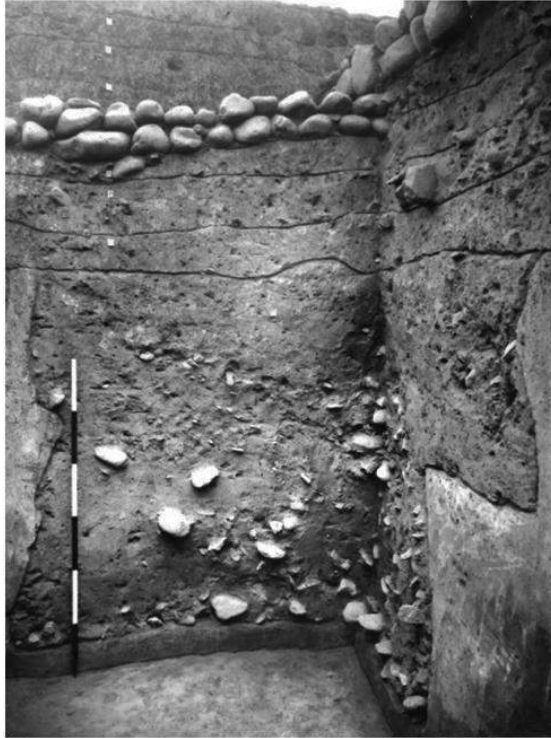


Fig. 3.2.6 Dwelling pit showing flight of steps.

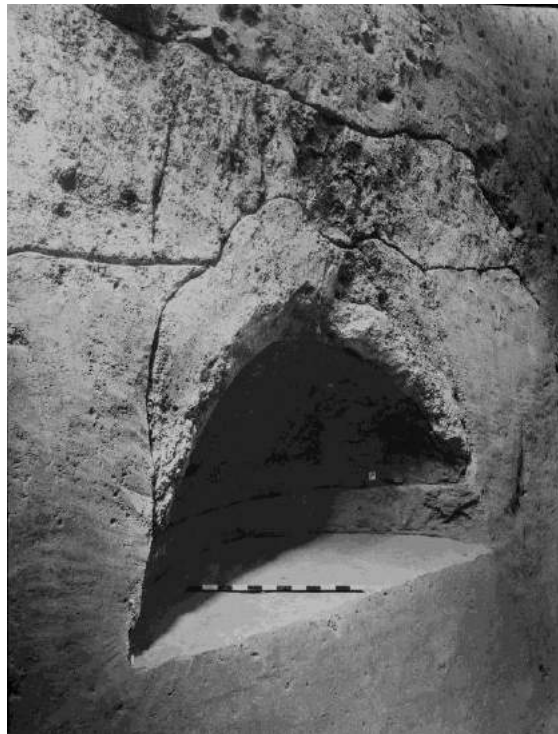


Fig.3.2.7 Small arched corridor plastered with mud.



Fig.3.2.8 Largest dwelling pit.



Fig. 3.2.9 Dwelling pit and floor level.



Fig. 3.2.10 Dwelling pit with stone hearth and small sized storage pits.

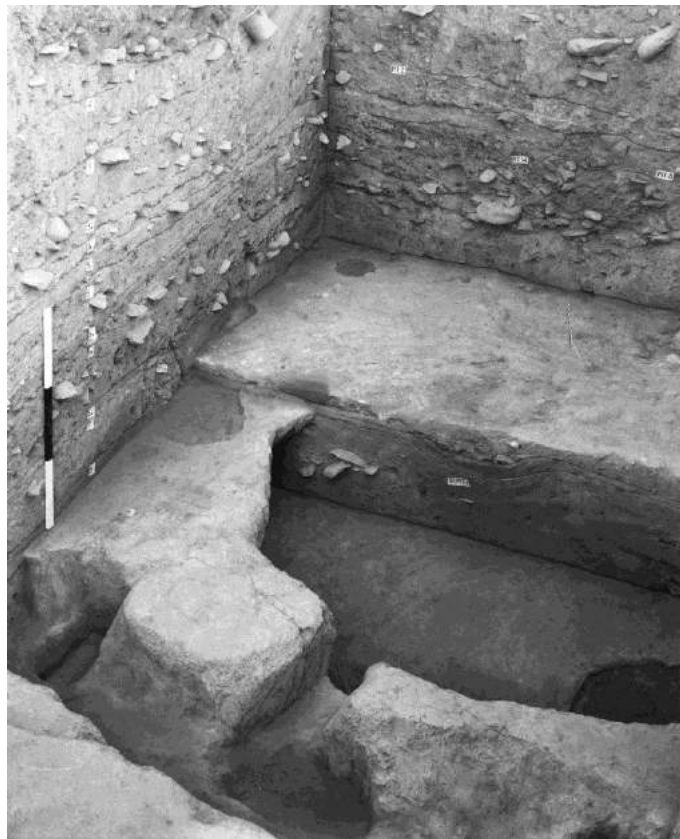


Fig. 3.2.11 Dwelling pit of phase I reused in phase II.

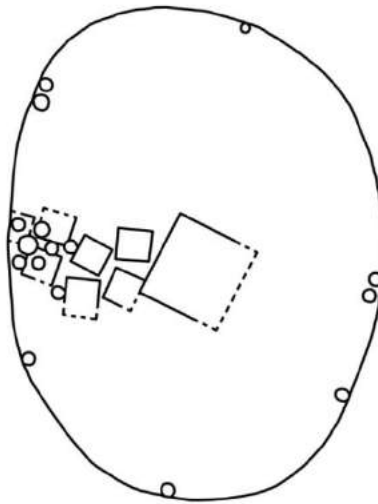


Fig.3.2.12 Distribution of circular pits and square chambers.

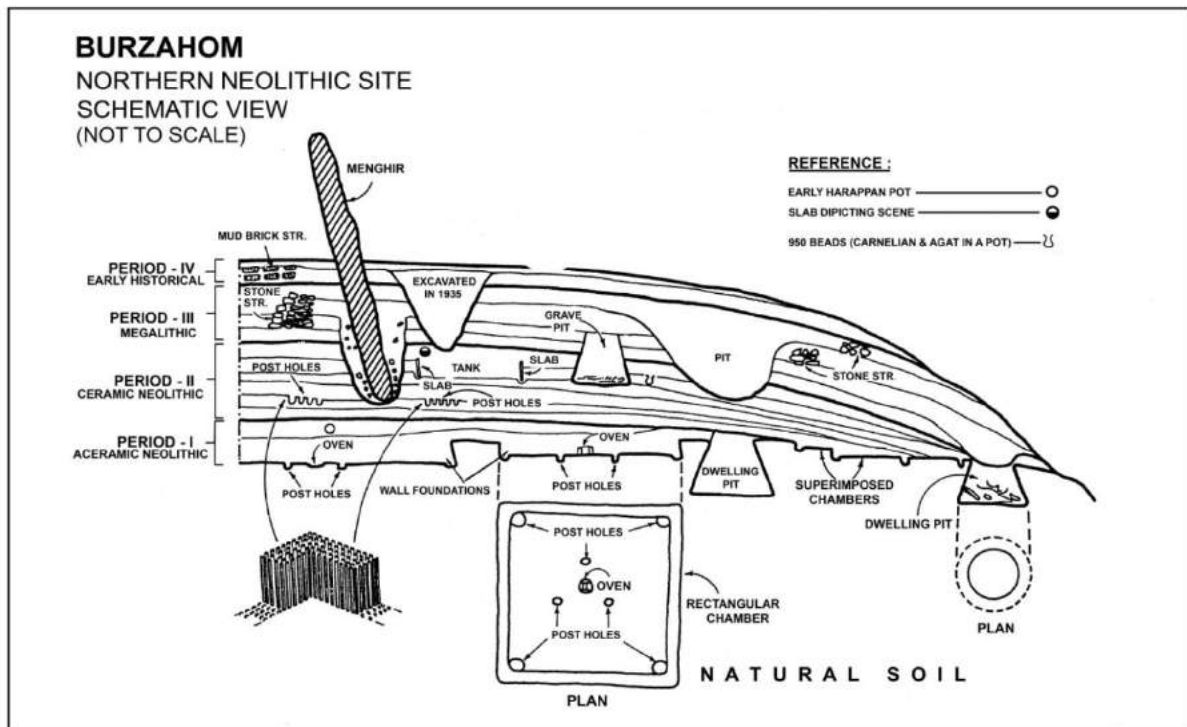


Fig. 3.2.13 Schematic drawing of various structural remains and features.

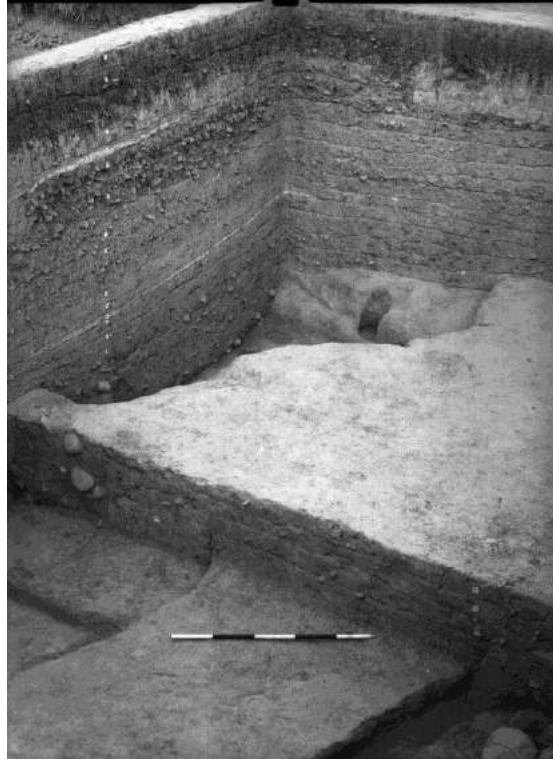


Fig. 3.2.14 Dwelling pit (rectangular in plan)

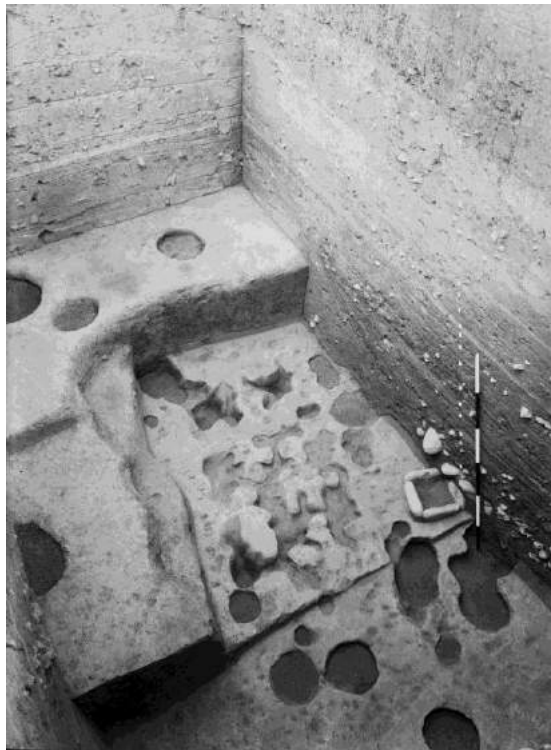


Fig. 3.2.15 Dwelling pit with holes, showing clay and stone lined hearths.

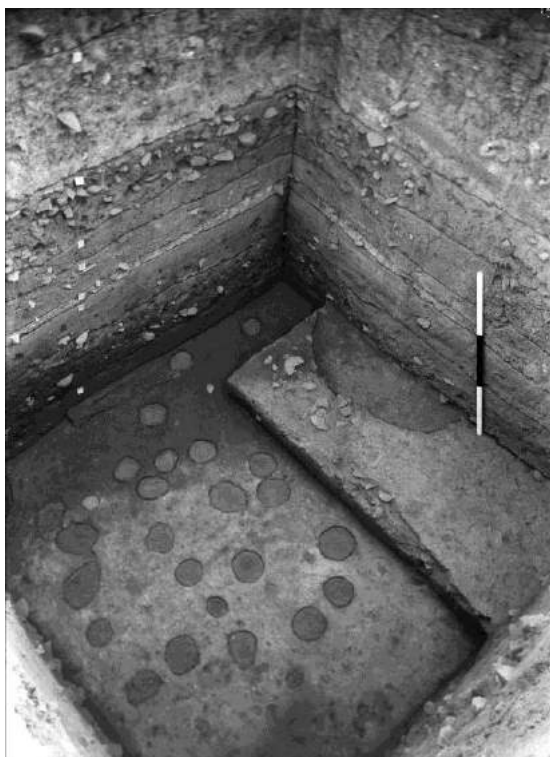


Fig. 3.2.16 Cluster of 45 post holes.



Fig. 3.2.17 Dwelling pit with clay and stone lined hearth.



Fig. 3.2.18 Mud-platform with storage pits and post holes.



Fig. 3.2.19 Rubble wall built over dwelling pit.

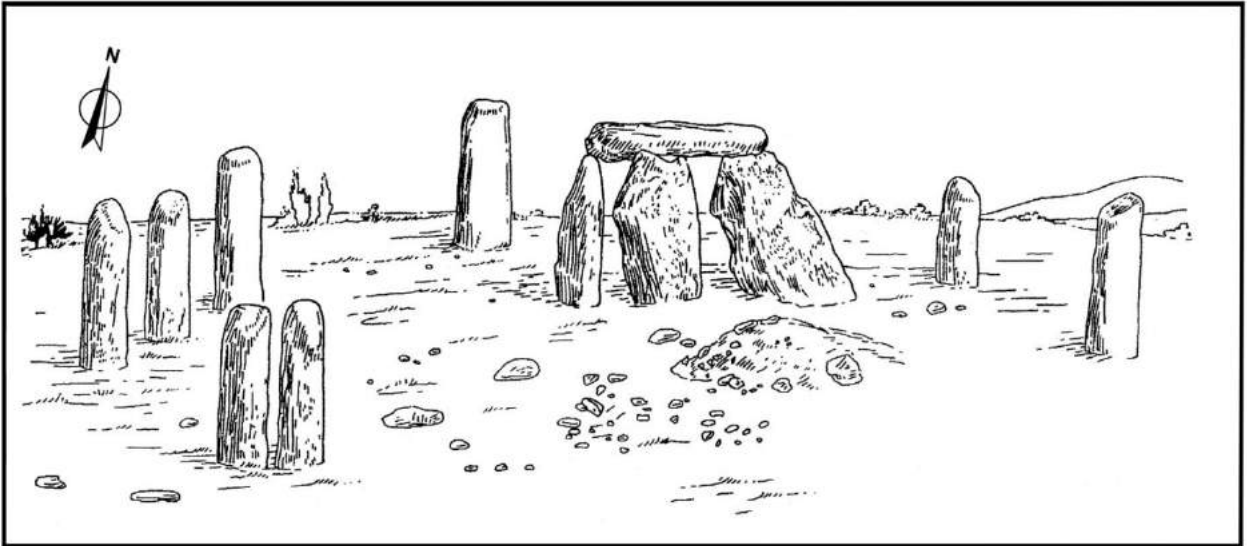


Fig. 3.2.20 Conjectural view of megalith (menhirs) at Burzahom.



Fig. 3.2.21 Group of Megaliths (menhirs).

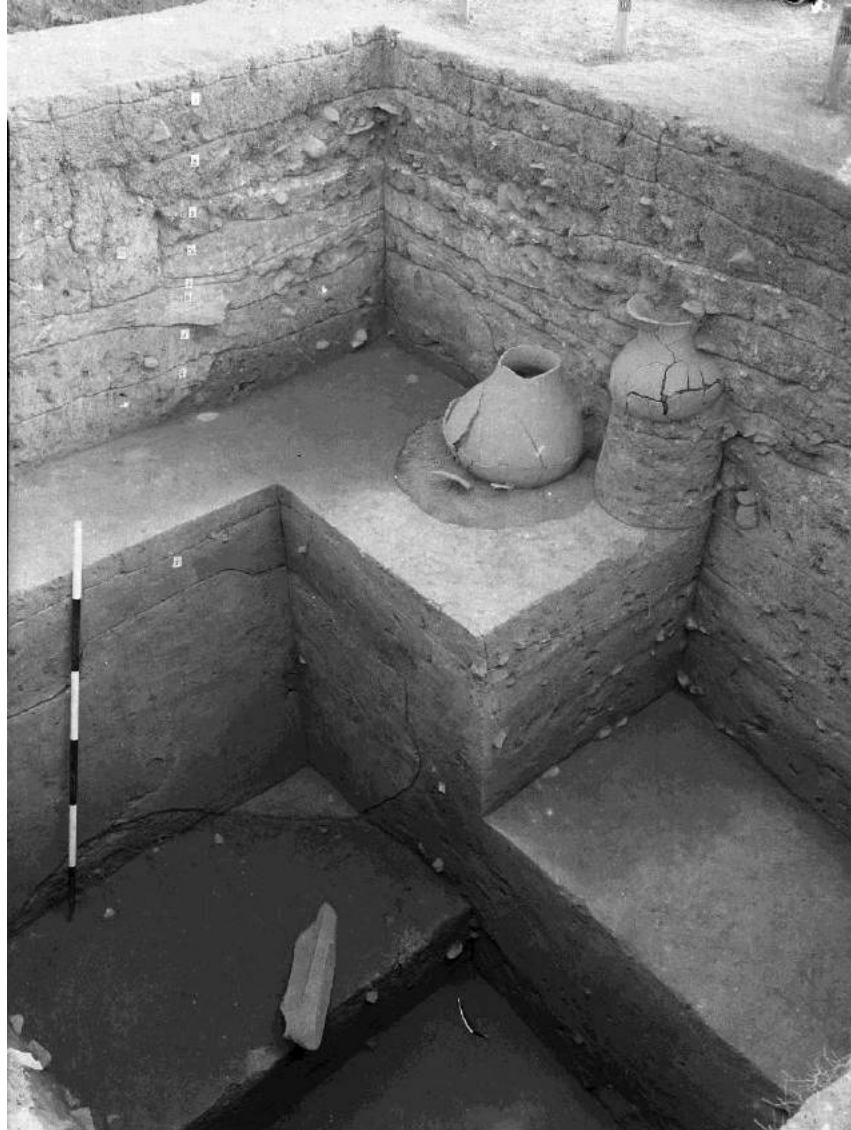


Fig. 3.2.22 Last occupational phase over earlier pit dwelling.

3.3 CHRONOLOGY

Radio-Carbon Dates from Burzahom Site

There are eight samples for C¹⁴ determinations recovered from Burzahom, out of which two samples are collected from Period-I & IIA, five are from Period IIB and last one is from Period III (Appendix -II). The carbon dates were assessed by the Tata Institute of Fundamental Research (TIFR), Bombay during August 1965-66. The dates are based on radiocarbon half-life value of 5730±40 years. For BC/AD scale, 1950 has been taken as the reference year. The result is given in following table:

LABORATORY NO.	¹⁴ C DATE HALF-LIFE VALUE 5730 YEARS	MASCA CALIBRATED DATES (BCE)
TF-128 Period-I, Charcoal Trench BZH-1/62 northern extension XXII-x - XXII.x1, depth 3.9m	4205±115 (4325±120) B.P 2375±120 B.C	2920-2940
TF-123 Period-IIA, Charcoal. Trench BZH-3/63, B2 (NE), pit C, depth 2.8-3.5m.	4055±110 (4175±115) B.P 2225±115 B.C	2650-2780
TF-127 Neolithic, Period-IIB, Charcoal. Trench BZH-1/62 Northern extension, XIX-x-XXII, xl, depth 2.9m.	3935±110 (4050±115) B.P. 2100±115 B.C	2550
TF-14 Period-IIB, Charcoal with mud. Trench SE, A1, depth 2.1-3m.	3860±340 (3975±350) B.P 2025±350 B.C	2340-2460
TF-13 Period-IIB, Charcoal with a little silty soil Trench BZH-3, A2 NW, pit 12, depth 1.93m.	3690±125 (3800±125) B.P 1850±125 B.C	2160
TF-129 Period-IIB, Charcoal. Trench BZH-1, XIX-XXII, depth 2.9m.	3670±90 (3775±100) B.P 1825±100 B.C	2120-2140

TF-15 Period-IIB, Burnt birch and hay with earth. Trench BZH-3, C2SW, pit A, depth 1.85m.	3390±105 (3485±110) B.P 1535±110 B.C	1720-1760
TF-10 Period III Charcoal with Powdery Earth Trench BZH-I	2380± 100 (2655 ± 103) & 707 ± 103 BC	800± 103 BC

Using the MASCA calibration it seems reasonable to assign the dates to the respective three phases of Neolithic Culture in Kashmir Valley: Period-I 3000-2850 BCE, Period IIA 2850-2550 BCE and Period IIB 2550-1700 BCE and Megalithic Culture Period III 1500-1000 BC

Radiocarbon Dates of Palaeosols and Loess from Burzahom

Radiocarbon dates presented in the table given below were determined at the Physical Research Laboratory, Ahmadabad. The dates are based on half-life value of 5730±40 years and for their conversion into BC/AD scale, the year 1950 is to be taken as the base. The dates are not corrected for any $^{14}\text{C}/^{12}\text{C}$ variations (IAR 1979-80).

PRL-585. Loess Palaeosol-I Organic fraction of the palaeosol. Sample no. BRZ/78/6	> 31,000
PRL-586. Loess Palaeosol Organic fraction of the palaeosol. Sample no. BRZ/78/7	>31,000
PRL-588. Kankar layer Carbonate fraction of the soil. Sample no. BRZ/78/9	14400+300 (12450 B.C.) – 290
PRL-590. Loess Palaeosol Fr. A. represents date on carbonate fraction and Fr. B. on the organic fraction of the soil. Sample no. BRZ/78/4	Fr. A. 17560+360 (15610 B.C.) – 350 Fr. B. 19000+840 (17050 B.C.) – 760
PRL-591. Loess Palaeosol Carbonate fraction of the soil. Sample no. BRZ/78/3	20940+1360 (18990 B.C.) – 1170
PRL-592. Loess Palaeosol Organic fraction from Garhi Burzahom. Sample no. GRH/78/1	27110+2070 (25160 B.C.) – 1660

PRL-593. Loess Palaeosol Fr. A. and Fr. B. represent dates on carbonate and organic fractions of the soil. Sample no. BRZ/78/1	Fr. A. 16150+380 (14200 B.C.) – 370 Fr. B. 19440+860 (17490 B.C.) – 780
PRL-594. Loess Palaeosol Carbonate fraction of the soil. Sample no. BRZ/78/5.	21030+940 (19080 B.C.) – 850
PRL-611. Loess Palaeosol Carbonate fraction of the soil. Sample no. BRZ/78/2.	20780 + 590 (18830 B.C.) – 550
PRL-643. Loess Carbonate fraction; depth 5 m. Sample no. BRZ/79/3.	31410+1850 (29460 B.C.) – 1510

Palaeobotanical and Pollen Analytical Investigations:

Charcoal and food-grains from the sites were investigated. The results of the investigations are given below (IAR 1975-76):

TF-124, (DGA : 6310; site: BZH-3'61'; Locus: A-1 and A-2; stratum: D; pit-C; Neolithic Phase I; depth: 13'7" B.S).	<i>Salix</i> sp.
TF-125, (site: BZH-3'61; locus: B-2 (NE), dwelling pit-C; stratum: D, pit-C; depth: 8'-9'3" B.S).	<i>Cedms deodara</i>
TF-126, (site BZH-3'61; locus: A-13 (NE, NW); stratum: 9, phase II, floor with post-holes; depth: 8'6" B.S).	<i>Pinus</i> sp
<i>The plant species identified still occur in the Kashmir Valley.</i>	

G.M. Buth, Department of Botany, Kashmir University and R.N. Kaw, Archaeological Survey of India studied the botanical remains from Burzahom and published an article on "Plant Husbandry in Neolithic Burzahom, Kashmir", 1989 (in *Current Trends in Geology Vol. VI*, New Delhi).

The investigation of the site for botanical remains was therefore, initiated on soil samples from different strata of Period I and II (3000-1700 BC). The plant remains thus recovered belong to wheat, barley and lentil. Besides, charcoal pieces from post holes were also recovered. The majority of these pieces were identified as pine – the main source of timber in Kashmir at present.

This was the first direct evidence of plant husbandry of the Neolithic from the site. The plant remains recovered from Periods I and II belong to both wild and cultivated groups, which are:

Cereals: The cereals include wheat and barley. Wheat is *Triticum compactum* and *Triticum Sphaerococum*. The two species show distinct diagnostic features are revealed by shape, size and cell patterns. Barley grains were identified as *Hordeum vulgare*.

Pulses: Seeds distinctly different from the cereals were recovered. These are circular and flattened with lenticular scar or hilum on the sharp margin which are characteristic features of cultivated lentils, *Lens culinaris*. In some of them the seed coat has been rubbed off revealing the two cotyledons.

Woods: The charred wood pieces from pits and post-holes belong to *Pinus* species. Most of the charcoal from Period I belongs to this genus. In addition, some charcoal pieces belonging to broad leaved plants were also recovered and identified as *Betula utilis* (birch), the bark of which was also found during excavation. From Period-II, besides *Pinus* and *Betula* charred woods belonging to *Salix* and *Ulmus* were also identified.

FINDINGS

4.1 CERAMICS

Excavations at Burzahom have revealed fourfold cultural sequences beginning with the Aceramic Neolithic (Period I), Ceramic Neolithic (Period IIA & IIB), followed by the Megalithic (Period III), and the Historical (Period IV).

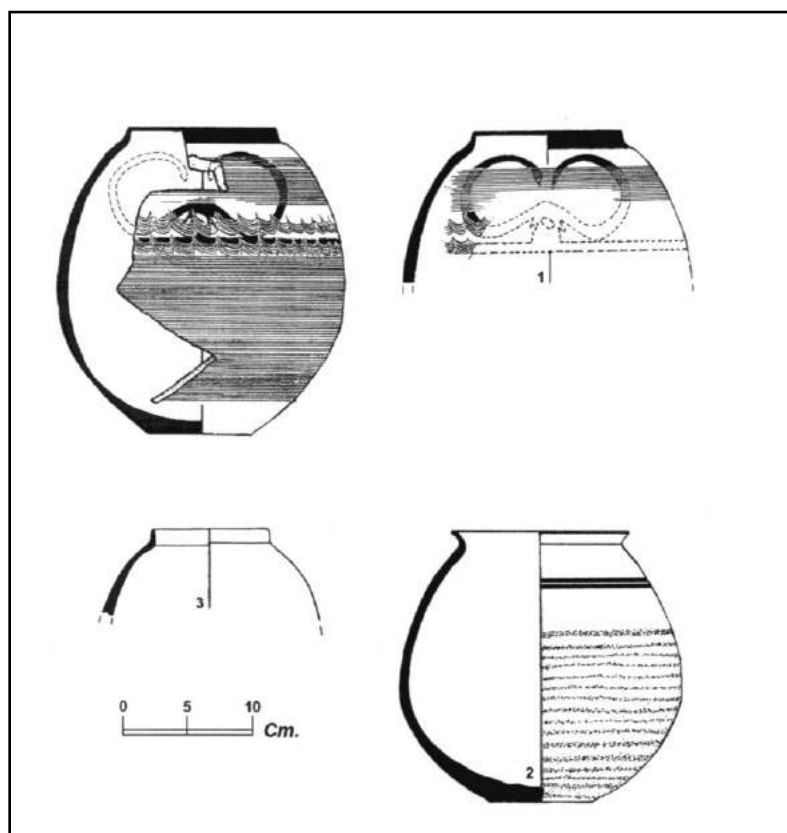
During 1960-1961, when vertical trenches were laid on the slope of the mound, in the initial stage, potsherds were found in the exposed pits. Thus no Aceramic Period was detected, as washed away material that included pottery was also found along with other antiquities in the pits. With the progress of horizontal digging from 1961-62 onwards ascending from the slopes towards the centre of the mound, rectangular chambers came up and started to show their original forms. Simultaneously, an approximately 1m gap was found between the pottery bearing levels and the natural soil and this gap was conspicuous by the absence of pottery. Thus a clear picture of aceramic events started appearing. Later on, from the mid sixties to early eighties, widespread explorations and excavations were carried out in the Valley to establish this situation. According to R. K. Pant (1978), a definite Aceramic Neolithic level existed throughout the length and breadth of the Valley. Moreover, in 1982 scientific excavation at Gufkral also unfolded presence of an Aceramic level there as at Burzahom.

Pottery marked its appearance from the next phase i.e. Period IIA that too handmade.. Thus, pottery specimens in the beginning are crude. With the passage of time, the pottery of Burzahom becomes quite distinctive and reflective of the technical advances made by virtue of contacts and requirements induced by lifestyle.

During excavations, four major types of potteries have been identified, namely, coarse grey ware having medium to thick fabric, fine grey ware, gritty dull-red ware, and burnished grey ware. The main shapes in coarse or thick grey ware include vases, bowls and basins. Most of these vessels have disc bases frequently bearing impressions of mats of varying weaving patterns. The fine grey ware was so named because of its fine texture, colour, thin section, and light weight. These sherds produce a ringing sound when struck. Probably strip and coil technique was used to prepare these pots, but strip technique dominated. The principal shapes have family likeness with modern Kashmiri *noat* (*ghara*), *ledji* (*handi*), *tsoad* (small pitcher), and *voar* (*lota*) types. Apart from typical Kashmiri pottery forms, there are a few shapes in gritty dull red ware, notably, vases and bowls, which are porous and thick. In the closing stage of Period IIA and the beginning of Period IIB, burnished grey ware was added to the inventory that continued upto the later periods. Primary shapes in the burnished grey ware are high-

necked globular jars, bowls, basins, dishes and dish-on-stand. The burnished grey ware from Period IIB also bears graffiti on a few vessels, notably, square bowls, vases and disc-based dishes. It appears that the ceramic assemblage of Burzahom is ill-fired, having coarse and heavy section, represents a distinctly non-Indus, non-Baluchi tradition. Apart from burnishing, the only decorations found on these vessels are clumsily executed incised and fingertip designs. It is worth mentioning here that, from Period IIB, a wheel made pot of red ware containing as many as 950 beads of agate and carnelian was found. Furthermore, a wheel-turned orange slipped, grooved vase with a horned figure painted in black, panelled (above Fig. 4.1.1) between the neck and shoulder bands was also unearthed from this period. Undoubtedly, these pots bearing a family likeness with the Pre-Harappan *Kot-Diji* type are intrusive types.

In the following period (Period III), when megalithic people appeared, they started preparing again thick gritty red ware, although a few specimens of this ware already in use during Period IIA.



The pottery is mostly handmade and generally manufactured through strip technique. In some cases, neck portion is made on a slow wheel. Colour of the ware ranged between bright to dull red and light brown, sometimes bearing dark patches. Few types bear partially worn out red slip. Big and small jars, bowls, vases, *lotas*, and dishes were found in this type. Potsherds

of the red ware, are generally wheel turned, the most distinctive type being the miniature vase, which may have been used either as a toy or a ritual object. Incidentally, it may be stated here that Black-and-Red ware, usually associated with southern Megalithic Culture, was conspicuously absent here. Besides gritty red ware, the coarse

black burnished ware was also recovered, but in its degenerated form and in lesser quantity.

The last period, i.e. Period IV, belongs to a stage, which according to the available evidence may date somewhat earlier than the Buddhist site of Harwan, ascribable to 3rd/4th century CE, yielded a red ware of fine to medium fabric, often slipped and mostly wheel made (*IAR 1961-62: 19*).

A brief description of the distinctive pottery types of different Periods is given below.

A. Coarse Grey Ware

Pottery of the Neolithic Period IIA from Burzahom is primarily mat impressed coarse grey ware, of medium to thick fabric with minor variations. There are a few types in fine grey ware and gritty red ware. Coarse grey ware, however, is the dominating type, and forms the basic ware of this Period. The pottery is throughout handmade and ill fired. Primary procedure of manufacturing is strip technique with a band in appliqué, in a few cases outer surfaces of the rim indicates use of coil technique in fashioning the pots. However, there is only marginal difference between the strip and the coil techniques, in which body of the pot is raised by jointing strips/coils, one above another. Besides, some turntable action is indicated in case of mat-impressed pots as the designs are clear and not smudgy, which should not have been possible without some turntable action in fashioning the pots on mats (Fig. 4.1.2 nos. 1 to 15 and Fig. 4.1.3 nos.16 to 27a).

Coarse grey ware (nos.1 to 10) has been uniformly fired to dull grey or darkish grey, except in few cases where darkish grey patches on the surfaces indicate indifferent firing or firing under reducing conditions. In a few samples the core are unoxidized and smoky grey. Fine grey ware is generally dull grey or ashy grey in colour and firing is uniform. The Gritty red ware is dull brown. However, frequency in these wares is extremely limited, as the dominant type is coarse grey ware.

Specimens indicate an irregular fracture due to presence of coarse grains of sand. The paste contains crushed rock material or grit, coarse sand, and pieces of quartz. In case of heavy storage vessels, especially in the gritty red ware, thicker grit has been used in the mix. Sometimes pieces of quartz have also been used in the tempering process.

Fine grey ware (nos.13, 14 and 15) has been uniformly fired to ashy grey or dull grey colour. Matrix is finer and less porous and ceramic thickness is thin to medium.

To a limited extent the paste indicates sand, crushed rock material, and grains of quartz. Gritty red ware (nos.11 and 12) is dull brown in colour. Matrix in this ware is comparatively coarser and porous. Thick grit and coarse sand have been noticed in the mix.

The principal shapes in all the three wares are Kashmiri *matha* (*matka*), *noat* (*ghara* or pitcher), *deg* (*handi*), *tsoad* (smaller pitcher), *voar* (*lota*), *pyala* (bowl), and *dulla* (deep basin). In the illustrated examples, figure nos. 1,2,3,5, and 15 are of *matha* (*matka*) types, no. 4 may have been a *deg* (*handi*) type, no. 6, a *noat* (pitcher) type, nos. 7, 8, 9 and 10 seem to be *tsoad* (smaller pitcher) types, while nos. 11, 13 and 14 may approximate *voar* (*lota*) types, no. 12 is a bowl type, and no. 26 is a *dulla* (deep basin) type.

Even today almost all the types mentioned above, with minor variations, are in use in the same manner in villages and small towns in the Valley of Kashmir by poorer sections of society. However, there are a few changes in some of these types.

Mathas (*matka*) are in use these days as heavy-duty storage vessels primarily for grains. *Noats* (*gharas*), and *tsoads* (small *gharas*) are used for fetching or storing water, milk, storing fats, milk products, and oils, or carrying above-mentioned liquid commodities for sale. *Voars* (*lotas*) and *pyalas* (bowls) are used for drinking purpose. *Dullas* (deep basins) are very much in use by fishermen/fisherwomen for sale of fish at distant centres from the source of the catch, as the marketable stuff can only be preserved in water. *Dullas* are also in use for sale of milk and curds. *Degs* are used for cooking, especially non-vegetarian food items like meat and fish. Such forms are also in use in metal for the same purposes.

There is no marked surface treatment on the pottery of Period IIA. Minor decorative features have, however, been observed. The outer surface of the rims in a few cases (nos. 3 and 4) are thumb/finger pinched or pressed softly at regular intervals to execute a decorative motif. In no.4 pinching has been done obliquely, thus presenting a pattern of protrusions and depressions. Less markedly, this is in evidence in no 3 also. Softer pinching is more common and as evidenced in nos. 1, 2, 5, 7, 8, 9, 10 and 15. These decorative motifs are restricted to external surface of the rim. In case of no.14, however, an additional band, about 4 mm wide, has been externally applied under the rim, while the shoulder has been grooved. It is pinched at regular intervals, presenting a pattern of protrusions and depressions approaching an irregular beaded design.

The most significant characteristic feature of surface treatment, however, is weed/reed/rush brushing. Reeds and rushes have a prolific growth in surrounding swampy areas and must have been available in abundance for this purpose. Brushing

has been deeply done in nos. 1, 2, 3 and 6, the deepest being in no.2, giving the impression of an incised pattern. Brushing is done mostly vertically or obliquely, and is restricted to some or the other part of the pot on the outer surfaces of most of the types, except the *dulla* type (no.26), where it is obliquely horizontal. Four different types of brushing are in evidence. In nos. 1, 2, 3 and 6, the impressions are broader and deeper with relatively wider spaces in between. Against this, attempted in a longer sweep forming a pleasing pattern, the lines are closely set in nos. 7 and 8. In nos. 5, 9, 10 and 15 the lines are properly spaced, thus presenting an effective pattern. In nos. 4, 11, 13 and 14, impressions are thin and the eye may need an aid to detect the pattern, especially in nos. 4 and 11. Nos. 16, 19, 21 and 23 (Fig 4.1.2), show outer surfaces brushed down up to the bottom. On inner surfaces, brushing is horizontal, or obliquely horizontal, and by and large done haphazardly and irregularly, forming an irregular criss-cross pattern, generally restricted to the rim and shoulder area. In certain cases, no brushing is in evidence.

Another distinguishing feature is the mat impression on the bases of pots. The mat impressions are prolific (nos. 16-25), and indicative of different weaving patterns. It is obvious that the pots must have been fashioned and left to dry on mats. Some turntable action is indicated in fashioning the pots on mats, since the impressions are clear and not smudgy. Patterns are varied: chevron, horizontal and vertical strips interlacing one over another, various combinations of horizontal and vertical strips or cross-wise patterning. These weaving patterns offer interesting scope for an independent study.

The specimens illustrated (Fig 4.1.2 & Fig 4.1.3) here are recovered from the dwelling pits of the Ceramic Neolithic levels. Thus, potsherds nos. 3, 5, 13, 17, 20 and 24 are from the lower levels, nos. 2, 7, 8, 10, 14, 16, 19, 21, 22, 25, and 26 are from the middle levels, and nos. 1, 4, 6, 9, 11, 12, 15, 18, and 23 are from upper levels of the pit. Figure no.13 is found from the earliest level of the pit. Following is a brief description of each type mentioned above:

1. Fragment of a vase in coarse grey ware with an out curved rim and a concave neck. It's thick core indicates a lot of crushed rock material and sand. Surface is dull grey. Outline of its mouth and neck suggests a Kashmiri *matha* (*matka*) type, these days used primarily for storage of grains. Its core is partly unoxidized smoky grey. Externally, just below the rim, there is a softly pinched decorative motif. Vertically done external brushing is nice, and evenly spaced. Inner surface is rough and brushing is haphazardly done as indicated by a few irregular lines.

2. Fragment of a vase in coarse grey ware with an out curved, externally thickened rim. The thickening seems to have been effected with an appliqué band, softly pinched at intervals to present a decorative motif. Neck is relatively long. clay is relatively little coarse, and limited tempering is in evidence. Surface is dull grey. Deeply done outer brushing in the upper part of neck is vertical and widely spaced and gives impression of an incised pattern. It is obliquely horizontal in the lower part. Inner surface is rough and having irregular horizontal brushing back and forth, which form an irregular criss-cross pattern. The long neck as also other features point to a Kashmiri *matha* (*matka*) type, meant for storage purposes. *Mathas* (storage vessels) are still in use in Kashmir for storage of grains, especially in the villages.
3. Fragment of a vase in coarse grey ware with an out curved externally thickened rim. Its core is unoxidized smoky grey with crushed rock material, coarse sand and a few grains of quartz inclusions. Outline of its mouth and neck suggests a Kashmiri *matha* (*matka*) type. Surfaces are dull grey. Externally, the rim has been softly pinched or pressed obliquely at regular intervals presenting a pattern of alternate protrusions and depressions. Decorative motif is not well marked. External brushing has been lightly done, and is obliquely vertical. Internal brushing is marginal, and consists of a few irregular lines.
4. Fragment of a vase in coarse grey ware with a featureless rim. Outline of its mouth and neck suggests a Kashmiri *deg* (*handi*) type vessel or container. Externally, rim has been pinched or pressed obliquely at regular intervals, presenting a pattern of protrusions and depressions. Coarse fabric, core unoxidized smoky grey with few crushed rock material, including grains of quartz, and coarse sand. External and internal dark patches indicate indifferent firing under reducing conditions. Surfaces are dull and darkish grey. There are slight marks of lightly and softly done vertical brushing in the upper part and oblique brushing in the lower part on external surface. Inner surface is devoid of any brushing.
5. Fragment of a vase in coarse grey ware with an out curved externally thickened rim. Outline of its mouth and neck suggests a Kashmiri *matha* (*matka*) type. Rim has been softly pinched or pressed externally, and presents an irregular pattern. Fragment is of medium fabric, less tempering is in evidence. Surface is dull grey.

External brushing, vertical and evenly spaced, is fine. Inner surface, so brushed as to form an irregular criss-cross pattern.

6. Fragment of a vase in coarse grey ware with an out curved featureless rim. Its outline suggests a Kashmiri *noat* (pitcher, *ghara*) type. Its thick core indicates grit, sand and a few grains of quartz. External surface is dull grey, while internal one is dark grey. External brushing, vertically and widely spaced, but not carried below except for a few horizontal strokes, has been softly done. Inner surface shows horizontal brushing with deeper incisions in the lower part.
7. Fragment of a long necked vase in coarse grey ware with a featureless out curved rim. Outline of mouth and neck suggests a Kashmiri *tsoad* (small pitcher) type. Core indicates grit, sand and grains of quartz. External surface is dull grey. Externally, rim has been softly pinched or pressed forming an irregular pattern of protrusions and depressions, but not markedly done. External brushing, vertical, evenly and closely spaced in longer sweeps, is carefully done. Inner brushing has been done horizontally in a disorganized manner, forming an uneven pattern.
8. Fragment of a vase in coarse grey ware with an out curved featureless rim. Externally, rim has been softly pinched intended for ornamentation. Outline of mouth and neck suggests a Kashmiri *tsoad* (small pitcher) type. It is of medium type, its core is unoxidized smoky grey with sand and grit. Surfaces are dark grey. External brushing is mostly vertical, though oblique brushing is also found in few lines. Inner surface bears horizontal and oblique criss-cross lines.
9. Fragment of a vase in coarse grey ware with an out curved featureless rim bearing soft pinching, intended for ornamentation. Outline of mouth and neck suggests a Kashmiri *tsoad* (small pitcher) type. Outer surface is dull grey and inner one dark grey. Fragment is of medium fabric, core indicates coarse sand. Brushing is vertical and partly oblique on outer surface, and horizontal though irregular on inner surface.
10. Fragment of a vase in coarse grey ware with a slightly out curved thickened rim, and relatively long neck. Outline of mouth and neck suggests a Kashmiri *tsoad*

(small pitcher) type. Outer surface of rim bears slight impressions of pinching or pressing, rather haphazardly done. Outer surface is dull grey while inner one is partially dull brown. Fragment is of medium fabric, core is unoxidized smoky grey containing quartz and sand. External brushing is obliquely vertical, while inner surface partially bears few lines due to oblique brushing.

11. Fragment of a vase in gritty red ware with a sharply flared out featureless rim and a relatively longer neck. Surfaces are dull brown. Outline of mouth and neck suggests a Kashmiri *voar* (*lota*) types. Fragment is of coarse fabric, core shows a lot of thick grit, sand and pieces of quartz. Decorative features, if any, are missing. External brushing with some soft sharply pointed light material is indicated by thin horizontal lines in upper part of neck, and few vertical lines below these.
12. Lower fragment of a broken bowl in gritty red ware with sides tapering to a thick disc base. Of thin and coarse fabric, core shows a lot of grit and coarse sand. Surfaces are dull brown. No brushing is noticed.
13. Fragment of a vase with flaring mouth in fine grey ware. Outer surface is ashy grey while inner one is dull grey. type is relatively fine, core is unoxidized smoky grey and less tempering is in evidence. Outline of mouth and neck suggests a Kashmiri *voar* (*lota*) type. External brushing is vertical, evenly spaced and seems to have been effected with some thin and soft stuff, as the lines are thin. Inner surface bears evidence of horizontal brushing irregularly done with some thicker stuff.
14. Fragment of a vase in fine grey ware with a featureless out curved thin rim and a grooved shoulder. Outline of mouth and neck suggests a Kashmiri *voar* (*lota*) type. External surface is ashy grey while internal one is dull grey. The fabric of the vessel is thin and made of fine clay, only limited tempering is in evidence. Outer surface just below rim bears an appliqué band pinched at regular intervals as a decorative motif, which approaches a beaded design. Outer surface bears traces of vertical and oblique brushing showing softly done thin lines. Inner surface is relatively much rough and devoid of any brushing.

15. Fragment of a vase in fine grey ware with an out curved externally folded and thickened rim. Outline of mouth and neck suggests a Kashmiri *matha* (*matka*) type. Surfaces are ashy grey in colour. It is made of fine clay with limited tempering. External brushing is vertical, relatively fine and closely spaced. Internal brushing, a jumble of horizontal lines, is haphazardly done.
16. -24. These are fragments of vases (lower portions, mostly bases) in coarse gray ware found from various levels in the subterranean pit. The vessels have are mostly thick or medium to thick body, with sides tapering to disc bases. Cores indicate thick grit, with few crushed rock material, coarse sand, and sometimes pieces of quartz found as fillers. Inner surfaces are rough in no. 20. Surfaces in nos. 17 and 19 are dark grey. Traces of brushing mostly obliquely horizontal in nos. 16, 19, 21, 23 and 24 are in evidence. It is very prominent in nos. 16 and 19, giving impression of an incised pattern. In no. 24 lines are fairly thin. Collective distinctive significance of these fragments is the mat impressions of various patterns, which bear on the weaving patterns and techniques of matting. In varying degrees, the technique continued even up to the post Megalithic and Historical Period.
25. Lower portion of a broken vase in coarse grey ware with sides tapering to a thick disc base. Outline suggests a deep bowl type. The vessel is thick and coarse; core indicates grit and coarse sand. Base carries mat impression of intertwined strips. No signs of brushing are in evidence.
26. Fragment of a vase in coarse grey ware with a featureless externally thickened rim. Externally, rim has been softly pinched or pressed at intervals, presenting an irregular pattern. Surfaces are dark grey. It is coarse; core indicates thick grit and sand. Outline clearly suggests a Kashmiri *dulla* (deep basin) type. Externally, horizontal and oblique brushing is in evidence as against mostly vertical brushing on other types. Inner surface bears traces of irregularly done horizontal brushing. *Dulla* type pots are common in use, and are useful during religious ceremonies.
27. Broken fragment of a vase in coarse grey ware with a featureless and externally thickened rim. External surface is dull grey while inner surface is dull brown. Its size is comparatively larger than that of no. 26. Made of coarse clay, core indicates a lot of tempering. Outer surface, including rim, bears lines due to oblique horizontal brushing, which is normally not done in other cases.

27a. A variant of the above in coarse grey ware with rim slightly out curved. body surface is coarse; core is unoxidized smoky grey and contains a lot of grit. Its inner surface is rough. Brushing on outer surface has been done haphazardly. Inner surface is devoid of brushing.

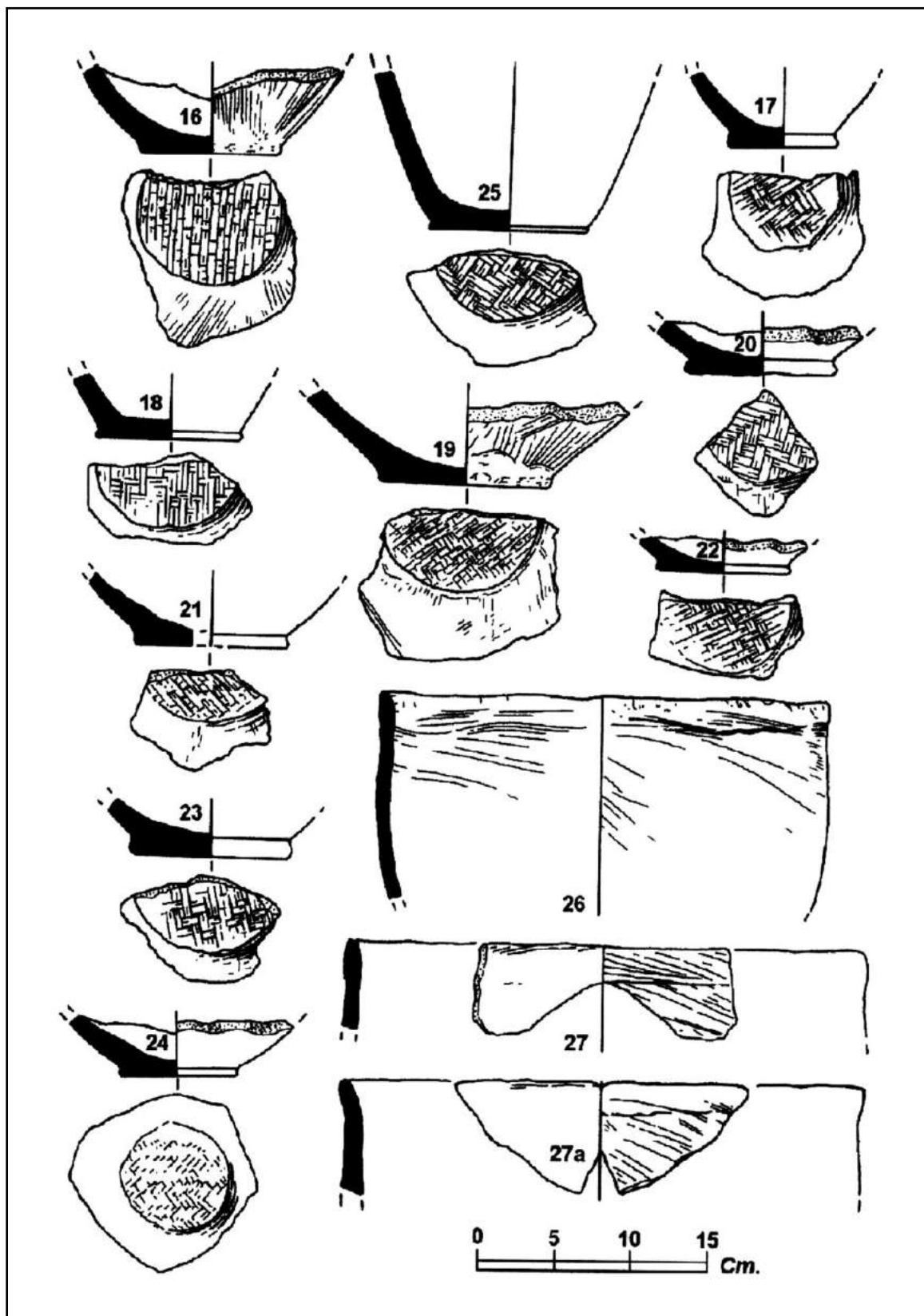


Fig. 4.1.2

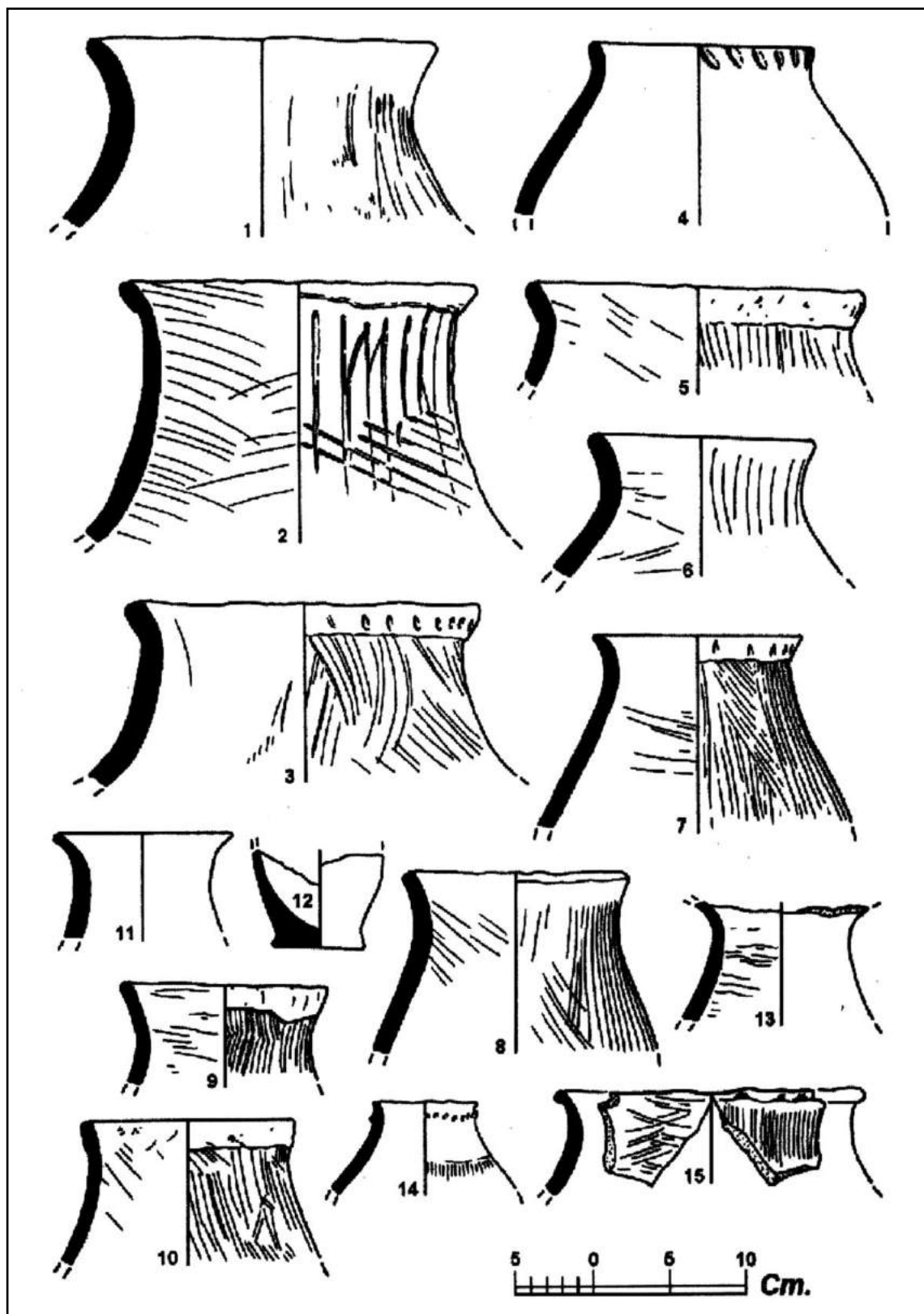


Fig. 4.1.3

B. Fine Grey Ware:

Whereas pottery of the Neolithic Period IIA from Burzahom is primarily mat impressed coarse grey ware, the dominant ware in Period IIB is fine grey ware, fired to various shades of grey such as ashy grey, dull grey and dark grey, as also dull brown and red in few specimens (see Fig. 4.1.4 nos. 1 to 19, Fig. 4.1.5 nos. 20 to 28 and Fig. 4.1.6 nos. 29 to 48). The next in significance is burnished grey ware followed by a few specimens in gritty red ware.

Nos. 1 to 28 are fine grey wares with the exceptions of nos. 2 and 6 which are dull brown and dull red wares, found from various levels of Period II A and II B. Nos. 30, 34 to 48 are from period III or Megalithic levels, while nos. 29, 31, 32 and 33 are from Period IV or Historical levels.

Mostly fine grey ware has been fired to various shades of grey which can be ashy grey, dull grey or dark grey. Some of the specimens have different internal and external shades. There are a few sherds in dull brown also. The most dominating is ashy-grey followed by dull-grey and dark grey in that order with few specimens in dull brown. The pottery is thin wheeled and the clay is generally fine, and varying from fine to coarse in few cases, depending upon tempering. Normally the ware has a finer matrix with limited tempering, fractures regularly, and is less porous compared to the earlier coarse grey ware of Period II A. Paste is tempered with crushed rock material and sand. A Few specimens indicate presence of large sized grains of quartz as tempering material. Firing is generally uniform except where dark patches or blotchy and unoxidized cores indicate indifferent firing. It is handmade, mostly by the strip, or/and strip and coil technique.

The principal shapes in fine grey ware are Kashmiri *noat* (pitcher- *ghara*), *ledji* (*handi* type), *tsoad* (small pitcher) and *voar* (*lota*) type. *Tsoads* (small pitcher) and *voars* (*lota*) dominate. There are a few large vessels such as Kashmiri *mallars* (bigger than a pitcher but smaller than a *matka*) type. Kashmiri *dulla* (deep basins) type and other bigger types of storage vessels, such as found in Period II A, have not been noticed. Compared to different forms in burnished grey ware, such as long necked jars, bowls, basins, dishes, and dish-on-stand, forms in fine grey ware are limited, although number of its occurrence in Period IIB is the maximum. Its forms are restricted to mostly those types which may have been in daily common use. Frequency of burnished grey ware is restricted, but the distinctive forms in this ware suggest that it is a special purpose ware used on special occasions, and may have a bearing on the ritual practices of the day.

Among the illustrated examples nos.1, 4, 8, 25, and 44 may have been *noat* (*ghara*) types. Outline of 21, 24, and 39 suggests a *mallar* type, nos. 5, 10, 19, 22, 35, 38 and 45 suggest *voar* (*lota*) types, nos. 2, 20, 27, 28, 30, 32, 41, 43, 46, and 47 suggest *tsoad* (smaller pitcher) types, and no. 26 suggests a *ledji* (*handi* - cooking vessel) type.

Normally, there is no special surface treatment in fine grey ware except for limited decorative motifs generally employed externally on the rim or neck part or even on the shoulder. In a few cases, decorative motif has been executed on the surface of pot where two strips are jointed in building its body (nos. 11, 14, 17, 31, 33, 42, and 48). Pinching or pressing deeply or softly is fairly common, for example, some specimens show the brim or area just below it is pinched or finger or thumb pressed at regular intervals to form an irregular or a wavy pattern or a cusped pattern set in a wavy outline (nos. 1, 2, 8, 10, 19, 24, 25, 35, 38, 44, 46, and 47). This seems to be a favourite device in presenting a decorative motif. In other cases, pinching is softly done; as such the pattern is not deeply marked (nos. 1, 19, 20, 32, 38, 44, and 47). Examples of deeper pinching or thumb or finger pressing along with a sharp pointed instrument or nail incised pattern are also found. In no. 8 the nail incised design is just above the pinched pattern forming a decorative feature with a central ridge. Deeply incised nail patterns presenting wavy lines is another motif. Sometimes excising is effected to present patterns, which may show an inverted triangle, oval or circular forms (nos. 15, 16, and 37). Incisions or excisions may be so employed as to produce various patterns of protrusions, protrusions and depressions, etc. (nos. 11, 28, and 48). In no. 28 there is an incised pattern to present an alternate course of triangular and inverted triangular protrusions as a decorative motif. Sometimes alternate incisions may be so effected as to present a denticular pattern in the form of protrusions (no. 48). A different incised pattern, found in no. 2, shows a deeply incised "V" like pattern surmounted by a vertically arranged row of excised holes, hardly 2 mm deep.

Another interesting decorative feature is the application of additional strips which have been employed to present a pair of circular button like formations with variations (no. 1, 7, 12, 36, and 46). This may also take the form of a band with a central stocky point as in no. 13, or a ring like band with circlets all around, as in no. 34. Another favorite pattern is employment of additional strips presenting a loop like pattern (nos. 6, and 9), or a "V" like formation (no. 21), or a chain like formation (nos. 20, 22, and 26). Application of this additional strip may be restricted to a part of the shoulder only as in nos. 20 and 22. In no. 18, which is the upper part of a broken Surahi like vase, the additional band on shoulder is deeply combed at regular intervals, thus presenting a series of alternate course of depressions and protrusions. This feature is

employed as a decorative motif mainly in fine grey ware in Period IIB. Thus, compared to simple practice of pinching deep or soft to ornament pottery in Period IIA, decorative motifs on the pottery of Period IIB are prolific and varied. However, these decorative motifs are normally restricted to rim, neck or shoulder.

Though there is no noticeable variation in the brushing styles of Period IIA and IIB, brushing is finer in most of the specimens in Period IIB as compared to IIA.. Externally it continues to be vertical, obliquely vertical and horizontal, or combination of the both. Inner brushing, mostly confined to neck, is horizontal or obliquely horizontal, and in a few cases, haphazardly and irregular done, presenting generally an irregular criss-cross pattern.

Another interesting feature is employment of comb like brushing restricted to the rim or slightly below it externally, as in nos. 24, 39, 46, and 47, and on the shoulder in no. 18. This brushing is certainly different from the normal brushing in longer sweeps. The lines are short, vertical or horizontal, and could have been effected with some special effort and instrument.

Apparently, in fine grey ware from the Neolithic to the Megalithic levels, there is no marked difference in the principal shapes, fabric, finish, tempering, employment of decorative motifs, and the style of brushing, whether internally or externally. The only striking difference in fine grey-ware from Neolithic to Megalithic levels is the occurrence of its frequency. The dominating ware in Period IIB is fine grey ware, whereas in the Megalithic levels, the principal ware is gritty red ware. In the Historical or Post-Megalithic levels, fine grey ware is just a trickle, only a few shapes are available. There is a marked deterioration in fabric also. Assorted samples of fine grey ware are illustrated below.

1. From Period IIB, fragment of a vase in grey ware with a flared and externally thickened rim and concave neck. Outline of neck suggests a Kashmiri *noat* (*ghara*) type. Thicker core is unoxidized smoky grey with grains of quartz. Surfaces are dull grey and indifferent firing is indicated. Externally, rim has been pinched at regular intervals, thus presenting a wavy pattern as a decorative motif. The pinched pattern seems to have been comb brushed. Neck has a pair of vertically arranged button like motif in relief. External brushing is vertical, done in thicker lines.
2. Fragment of a vase in dull brown ware, with an out curved rim thinned down at the top by scraping outer surface in an irregular fashion. An additional band has

been applied immediately below the thin brim. Made up of coarser clay, the core is smoky grey with grit and quartz grains in it. Indifferent firing is also indicated. External surface carries two "V" shaped incised patterns with trace of a third, each surmounted by a vertically arranged row of circlets. External brushing is vertical while internal one is horizontal in an irregular fashion. From Period II B.

3. Fragment of a vase in fine grey ware. Surfaces are ashy grey. The clay is fine and firing is good. Less tempering is in evidence. Decorative motif is in the form of a 5 to 6 mm wide applied strip. This type of pattern is in evidence from Period IIA (no. 26). External brushing is fine, being vertical above the applied band, and in horizontal sweeps below it. Internal brushing is horizontal. From Period IIB.

4. Fragment of a vase in grey ware with an out curved, externally thickened rim. Surfaces are ashy grey. Outline of neck suggests a Kashmiri *noat* (*ghara*) type. Fabric is relatively coarse; core indicates crushed rock material and grains of quartz. Externally, in the lower section of rim it has a nail-incised design presenting a wavy pattern. Nail incised patterns appear in the Neolithic level and continue up to the Megalithic level. Brushing below incised wavy line is vertical and obliquely vertical above it right up to the brim. Lines are relatively thick. Internal brushing shows few horizontal lines in irregular criss-cross pattern. From Period II B.

5. Vase in grey ware with neck and bottom broken. Outer surface is dull grey. Firing is indifferent. The clay fabric is relatively coarse; core indicates a lot of crushed rock material. It is a typical Kashmiri *voar* type in size and form. Body is bulbous to round. It was found in the human burial pit no. 7, which had a trephine skull of a female. A thin strip has been applied over one third of shoulder presenting a corded pattern. External brushing is vertical on the upper portion and obliquely vertical below it. Inner surface bears ample traces of red ochre in it. Red ochre was also found sprinkled on the bones of the buried person. From the closing stage of Period II B.

6. Fragment of a pot in dull red ware. A thick vessel made of relatively coarse clay; core is unoxidized smoky grey with crushed rock material and grains of quartz. An externally applied thick strip presenting a loop pattern as decorative motif is

- interesting. There is no evidence of brushing, internal or external. Loop like pattern with variations are also in evidence in other specimens. From Period II B.
7. Fragment of a vase in fine grey ware. External surface is dull grey, internal being dark grey. While its matrix is fine, core is unoxidized smoky grey. Less tempering is in evidence. It shows two buttons like pellets, each 1.4 cm. in diameter, applied externally to the body in close proximity to each other as a decorative motif. Button like pellets with minor variations as a decorative feature seems to be common and continue in the Megalithic levels also (nos. 1, 7, and 12 in the Neolithic levels and nos. 36, and 46 in the Megalithic levels). External brushing is varied and fine, being vertical, horizontal and obliquely horizontal. Internal brushing is horizontally criss-cross. From Period II B.
 8. Fragment of a vase in fine grey ware with an out curved, externally collared rim. Outline of mouth and neck suggests a Kashmiri *noat* (*ghara*) type. Surfaces are ashy grey. Made of fine clay, its core indicates less tempering. Below rim, an additional coil is employed, which is pinched at regular intervals presenting a wavy pattern and forming a zigzag ridge. Above this is a nail incised pattern. Vertical brushing is finer, lines formed being thinner. Inner brushing below 2 cm. from the top of the rim is in horizontal sweeps and irregularly done. Pinched and nail incised patterns have the maximum incidence in grey ware in Period IIA and IIB and continue in the Megalithic and Historical levels though with variations and less frequency. Beginning level of Period II B.
 9. Fragment of a vase in fine grey ware. Outline suggests a Kashmiri *tsoad* (mini *ghara*) type. Surfaces are ashy grey. the clay is fine, and less tempering is in evidence, and firing is uniformly good. Decorative feature is in the form of a loop like applied band (approaching inverted U letter). External brushing is vertical. It is obvious that brushing was done after application of the additional band. A similar pattern, but thicker, is in evidence in no. 6 from the same level. From Period II B.
 10. Fragment of a vase in fine grey ware with an out curved, externally collared rim. Its surfaces are ashy grey. Outline suggests a Kashmiri *voar* (*lota*) type. The clay is fine and relatively thin. Externally, just under rim, decorative motif consists of a thumb pressed design at regular intervals presenting an effective cusped pattern

set in a wavy outline. External brushing is fine, vertical and broadly spaced. Internal brushing is irregular criss-cross horizontally done. From Period II B.

11. Fragment of a vase in grey ware. External surface is dull grey while internal one dark grey. Made of medium fabric, its core is unoxidized smoky grey. Decorative motif consists of obliquely positioned rectangular protrusions effected by an excised pattern at the junction of two strips for potting. There are traces of nominal brushing. From Period II B.
12. Fragment of a vase in fine grey ware. Surfaces are ashy grey. Core indicates a finer paste. There are two circular button like pellets appliquéd to the body with central portion of each projection so pressed as to form a decorative motif. External brushing is fine, vertical and properly spaced, inner brushing is haphazardly horizontal. From Period II B.
13. Fragment of a vase in fine grey ware. Surfaces are ashy grey. Made up of fine clay, core indicates crushed rock material. It shows three applied circular pellets with excised circumference thus retaining a stocky central point. There are traces of obliquely vertical brushing also. From Period II B.
14. Fragment of a vase in fine grey ware. External surface is dull grey, internal one dark. The vessel is relatively thick, core indicates crushed rock material. The decorative motif showing a pinched design at regular intervals approaching a cusped pattern of alternate depressions and protrusions is worked at the junction of two strips employed in potting. External brushing above the decorative motif is oblique, while there are a few irregular lines below it. There is no evidence of internal brushing. Beginning of Period II B.
15. Fragment of a vase in grey ware. Outer surface is dull brown, inner being ashy grey. Core indicates a finer paste and less tempering is in evidence. Decorative motifs consist of a horizontal row of narrowly set small inverted triangular-in-outline pattern and a slightly oblique denticular pattern close by. External brushing is obliquely vertical, inner one horizontal. From Period II B.

16. Fragment of a vase in grey ware. External surface is dull grey, inner one dark grey. Body shows four incised circular patterns widely spaced, three horizontally in a row, and the fourth below them at right angle, formation approaching a triangle. From Period II B.
17. Fragment of a vase in fine grey ware. Outer surface is dull grey, inner one ashy grey. Fabric is fine, core is ashy grey. Potting in strip technique is obvious. Diagonally thumb pressed design presenting a continuous cusped pattern with alternate thinner protrusions worked on a band applied to the junction of two strips used in potting. Line of intersection between the strips is clear. External brushing is vertical above the design and obliquely horizontal below it. Internal brushing is horizontal. Middle level of Period IIA.
18. Fragment of a vase in fine grey ware. Surfaces are ashy grey. Its shape indicates a *surahi* (water jar) type, although such types are presently not in use in Kashmir. Core indicates a finer mix and only limited tempering is in evidence. However, application of an additional band on the shoulder so pinched as to form an alternated course of rectangular protrusions and depressions, looking like a chain pattern. Pinched portions seem to have been comb brushed as evidenced by thin parallel lines. Comb brushing seems to have also been employed just above and below it. These lines are closely spaced and short. Brushing on neck part is widely spaced and vertical. Inner surface bears traces of potting in strip technique. From Period IIA.
19. Vase in grey ware with an externally thickened and bevelled rim, high concave neck, an elliptical profile sagging concavely from waist to a disc base. In shape, it is a typical Kashmiri *voar* (*lota*) type, still in use. It is of fine clay with thin walls showing unoxidized dark grayish core, and devoid of any surface treatment. Externally rim bears a softly pinched design at regular intervals. Traces of widely spaced vertical brushing are in evidence externally on its neck portion only. Inner surface is devoid of any brushing. It was found just outside the grave-pit for human skeleton no. 5. Middle level of Period II A.
20. Vase in dull grey ware with a slightly out curved externally thickened rim, its lower section bearing a pinched design effected at regular intervals, globular profile gradually narrowing towards a small disc base. An additional band so pinched and comb brushed as to form a wavy pattern has been applied over a

part of shoulder. In shape, it is a typical Kashmiri *tsoad* (mini *ghara*) type, still in use. It is of medium fabric, core is unoxidized smoky grey with grit in it. Brushing on outer surface is in three sweeps, vertical on neck part, and obliquely so below it, except the lower part. Internal brushing, a jumble of irregular lines, has been carried to the bottom which is not a normal feature. Middle level of Period II A.

21. Fragment of a vase in grey ware with an out curved rim. Outline of its mouth and neck suggests a Kashmiri *noat* (*ghara*) type. The fabric is of medium thickness, core indicates crushed rock material. External surface is dull grey while inner one is dull brown. An additional band has been applied externally on its neck part so as to form a 2 mm wide V shaped pattern with broadly spaced large arms as a decorative motif. Externally, brushing on neck part below the applied additional band is vertical with a few irregularly done horizontal lines above it on rim part. Lines are relatively thick. There are a few irregular lines on inner surface. Middle level of Period II A.
22. Vase in dull grey ware with an out curved and externally folded rim, short concave neck and globular profile gradually terminating in a small disc base. External surface is dull grey while internal one is dull brown. In shape, it is typical Kashmiri *voar* (mini *ghara*) type. Clay is fine, core indicates crushed rock material. Rim top has a softly pinched pattern with few nail incisions. There is an additional band presenting a chain pattern on its shoulder. External brushing on neck part is vertical above the decorative pattern, and obliquely horizontal below it up to the base. It is apparent that additional band has been employed after brushing, as vertical lines run under it. There are a few horizontal lines on inner surface, which is dull brown and contains traces of ochre. It may have been used for storing ochre. Middle level of Period II A.
23. Fragment of a vase in fine grey ware. External surface is dark grey, internal ashy grey. Clay paste is fine. It bears an additional strip showing thumb pressed design presenting a cusped pattern with alternate protrusions. There is an evidence of internal horizontal brushing. From Period IIA.
24. Fragment of a vase in grey ware with a splayed out thickened rim. Outline suggests a Kashmiri *noat* (*ghara*) type. External surface is dark grey while inner

one is ashy grey. The clay of vase is medium, core is unoxidized smoky grey. Its rim bears a uniformly pressed design circular in outline alternated with minor protrusions, pinching being effected softly at regular intervals. Few thin lines on external surface just below rim indicate horizontal brushing with some fine material. From Period II A.

25. Fragment of a vase in fine grey ware with an out curved thickened rim, externally comb brushed to present what looks like a chain pattern. Outline of mouth and neck suggests a Kashmiri *noat* (*ghara*) type, generally used for fetching or storing water or else milk meant for sale. Surfaces are dark grey, clay is fine. Brushing on outer surface is vertical, deeply and thickly done with a few sweeps in obliquely vertical style forming a pleasing pattern. From Period IIA.
26. Fragment of a vase in fine grey ware. Made up of fine clay, surfaces are dark grey. A 6 mm wide strip softly pinched at regular intervals presenting a chain like pattern is applied on the shoulder. External brushing is fine, vertical and horizontal as also obliquely so. From Period IIA.
27. Fragment of a vase in grey ware with externally thickened, straight rim, lower section of which is decorated with a nail incised pattern, constricted neck, shoulder bears an irregular band, indicating joint of strips. Shape is distinctive and suggests a Kashmiri *tsoad* (small *ghara*) type. External surface is dull grey, internal dull brown. Core is unoxidized smoky grey, firing indifferent. clay is relatively thin, matrix fine. External brushing is obliquely vertical below mouth and a few haphazardly done lines under it. Inner brushing is marginal. From Period II A.
28. Fragment of a vase in fine grey ware with an out curved externally thickened rim showing deeply incised lines so as to form an alternate course of triangular and inverted triangular-in-outline protrusions. Surfaces are ashy grey, clay is fine. Externally there are traces of fine vertical brushing in thin lines. Inner surface in this small fragment does not bear any traces of brushing. From Period IIA.
29. Fragment of a vase in dull brown ware. Clay is medium; core indicates a lot of crushed rock material. Outline suggests a Kashmiri *noat* (*ghara*) type. It bears a

double row of excised circular to oval 1 mm deep and 2 mm wide depressions on the shoulder as a decorative motif. There is no evidence of internal or external brushing. From period IV or Historical level.

30. Vase of dull brown ware with a featureless out curved rim narrowly thickened externally, concave neck, bulbous to rounded body smoothly terminating in a mat impressed thick base. Fabric is medium, core is unoxidized smoky grey, and indicates indifferent firing. Its shape indicates a typical Kashmiri *tsoad* type. It is devoid of any surface treatment. External brushing is vertical with a few lines confined up to shoulder only. Inner brushing is horizontal but nominal and limited to shoulder only. From Period III or Megalithic level.
31. Fragment of a vase in grey ware. External surface is dull grey, internal dull brown. Clay is fine and less tempering is in evidence. It bears a decorative strip showing an irregularly pinched design with protrusions applied to the junction of two strips employed in potting. There is no evidence of brushing. From period IV or Historical level.
32. Fragment of a vase in grey ware without curved, externally straight rim, and relatively large neck. Its outline suggests a Kashmiri *tsoad* (smaller *ghara*) type. Its outer surface is ashy grey, while inner one is dull brown. Clay is coarse; core indicates crushed rock material and grains of quartz. Firing is indifferent. External brushing is obliquely vertical, internal brushing consists of a few irregular lines. From period IV or Historical level.
33. Fragment of a vase in fine grey ware. External surface is dull grey, internal ashy grey. Clay is fine, less tempering is in evidence. Decorative motif consists of a strip showing thumb or finger pressed design with minor protrusions, forming a cusped pattern, applied to the junction of two strips employed in fashioning the pot. The strip technique thus continued even upto the Historical period, even though there is evidence of wheel made pottery. There is no evidence of brushing in the fragment. From period IV or Historical level.
34. Fragment of a vase in fine grey ware. Surfaces are ashy grey, matrix is fine. A ring shaped strip ornamented with a string of dot like circlets, each circlet dotted

in the centre, has been applied to the body. Vertical brushing is in evidence. From Period III or Megalithic level.

35. Fragment of a vase in fine grey ware with an out curved externally thickened straight rim. Surfaces are darkish grey, body is relatively thin, and matrix is fine. Outline indicates a Kashmiri *voar (lota)* type. Externally, the lower section of rim top is ornamented with a pattern formed by a row of nail incisions, and a comb brushed pinched pattern in a wavy outline below it. External brushing is fine, vertical and closely spaced. Internal brushing is nominal and haphazard. From Period III or Megalithic level.
36. Fragment of a vase in fine grey ware. Surfaces are ashy grey, clay relatively thin, and paste is fine. Two circular buttons like pellets, each 8 to 9 mm in diameter, are appliquéd to its body. There is no evidence of brushing, internal or external. From Period III or Megalithic level.
37. Fragment of a vase in fine grey ware. Surfaces are dark grey, matrix is fine. An excised pattern, oval-in-outline at regular intervals with spaces in between is executed on clearly indicated junction of two strips employed in fashioning the body of pot as a decorative feature. No brushing is in evidence in the fragment. From Period III or Megalithic level.
38. Fragment of a vase in fine grey ware with an out curved, externally thickened rim, lower section of which is decorated with a softly pinched design at regular intervals set in a wavy outline. Surfaces are ashy grey, the vessel relatively thin, and core indicates well-levigated paste. Outline suggests a Kashmiri *voar (lota)* type. There is no evidence of brushing whether internal or external. From Period III or Megalithic level.
39. Fragment of a vase in grey ware with an out curved thickened rim bearing a thumb or finger pressed design, effected at regular intervals, thus presenting a cusped pattern set in a wavy outline. It seems to have been comb brushed also as is evident from short horizontal lines evenly spaced going over the depressions. Its surfaces are dull grey. Of medium clay, core indicates crushed rock material and grains of quartz. Outline of neck and relatively wide mouth indicate a

Kashmiri *Mallar* (bigger *ghara*) type. It is larger than a *noat* (*ghara*) and smaller than a *matha* (*matka*) type. External brushing below rim is vertical in finer lines, closely spaced. There are a few irregular lines on inner surface. From Period III or Megalithic level.

40. Fragment of a vase in fine grey ware. Surfaces are ashy grey, clay surface is relatively thin, and matrix is fine. An additional 4 to 5 mm wide band with broad and deeply incised short diagonal lines to present an irregular pattern of protrusions is appliquéd to the body. No brushing internal or external is in evidence. From Period III or Megalithic level.
41. Fragment of a vase in fine grey ware with an out curved thickened rim. External surface is ashy grey, internal darkish grey. Clay surface is relatively thin; core indicates grains of quartz and crushed rock material. Outline suggests a Kashmiri *tsoad* (smaller *ghara*) type. Externally, thickened rim has been softly pinched at regular intervals to present an irregular pattern. It is also comb brushed as is evident from short vertical lines evenly spaced. External brushing shows evenly spaced vertical lines, internal brushing is closely spaced and horizontal. From Period III or Megalithic level.
42. Fragment of a vase in fine grey ware. External surface is dull grey, internal ashy grey. Clay is fine, and limited tempering is in evidence. Decorative motif consists of a softly pinched design presenting an irregular cusped pattern applied to the junction of two strips employed in fashioning the pot. Oblique brushing on external surface, inner brushing is horizontal. From Period III or Megalithic level.
43. Vase in grey ware with an out curved externally thickened comb brushed rim, pinched at regular intervals to produce a decorative pattern, concave neck, and rounded profile smoothly tapering towards base, which is broken. It is a typical Kashmiri *tsoad* (smaller *ghara*) type. External brushing below rim is vertical, carried almost up to bottom, and widely spaced. There are no traces of internal brushing. From Period III or Megalithic level.
44. Fragment of a vase in fine grey ware with an out curved and externally thickened rim. External surface is grey and internal one dark grey. Its outline suggests a

Kashmiri *noat* (*ghara*) type. It is of medium fabric, core indicates crushed rock material and grains of quartz. Externally, rim has a finger or thumb pressed design at regular intervals forming a cusped pattern set in a wavy outline, in addition it is comb brushed as is evident from short horizontal lines on the cusped pattern. External brushing is fine, obliquely vertical and closely spaced, internal brushing is horizontal and irregular, confined to part of the neck and rim. From Period III or Megalithic level.

45. Fragment of a vase in fine grey ware with an out curved and externally thickened straight rim bearing a nail incised design. Surfaces are dull grey, Clay is relatively thin, and matrix fine. Outline suggests a Kashmiri *voar* (*lota*) type. There are slight traces of obliquely vertical external fine brushing which can be located with an aided eye, as the lines are considerably thin and softly effected. From period III.
46. Fragment of a vase in fine grey ware with an out curved and externally folded and thickened rim. Matrix is fine. Its outline suggests a Kashmiri *tsoad* (smaller *ghara*) type. Externally, lower section of rim has been so finger or thumb pressed as to produce a cusped pattern with alternate minor protrusions set in a wavy outline, which is also comb brushed as is evident from short horizontal lines running over the cusps, and short, evenly spaced vertical lines above the cusped pattern. Neck has two circular button shaped widely spaced ornamental pellets. There are traces of vertical brushing on external surface, internal brushing consists of a few irregular horizontal lines. From Period III.
47. Fragment of a vase in fine grey ware with a splayed out externally thickened rim, top of which has been softly pinched and comb brushed to produce a pattern, and its lower section bears a finger or thumb pressed design presenting a comb brushed cusped pattern with alternate protrusions sets in a wavy outline. Internal surface is dull grey, internal darkish grey. Shape indicates a Kashmiri *tsoad* (smaller *ghara*) type. External brushing below is fine and evenly spaced. Inner brushing, showing irregular horizontal lines, is confined to rim. From Period III.
48. Fragment of a vase in fine grey ware. Outer surface is dull grey, inner surface ashy grey. Clay is fine, and less tempering is in evidence. Soft pinching has been applied to the junction of two strips employed in fashioning the pot to present a

design of alternate depressions and protrusions approaching a denticular pattern as a decorative motif. There is no evidence of brushing, whether internal or external. From Period III.

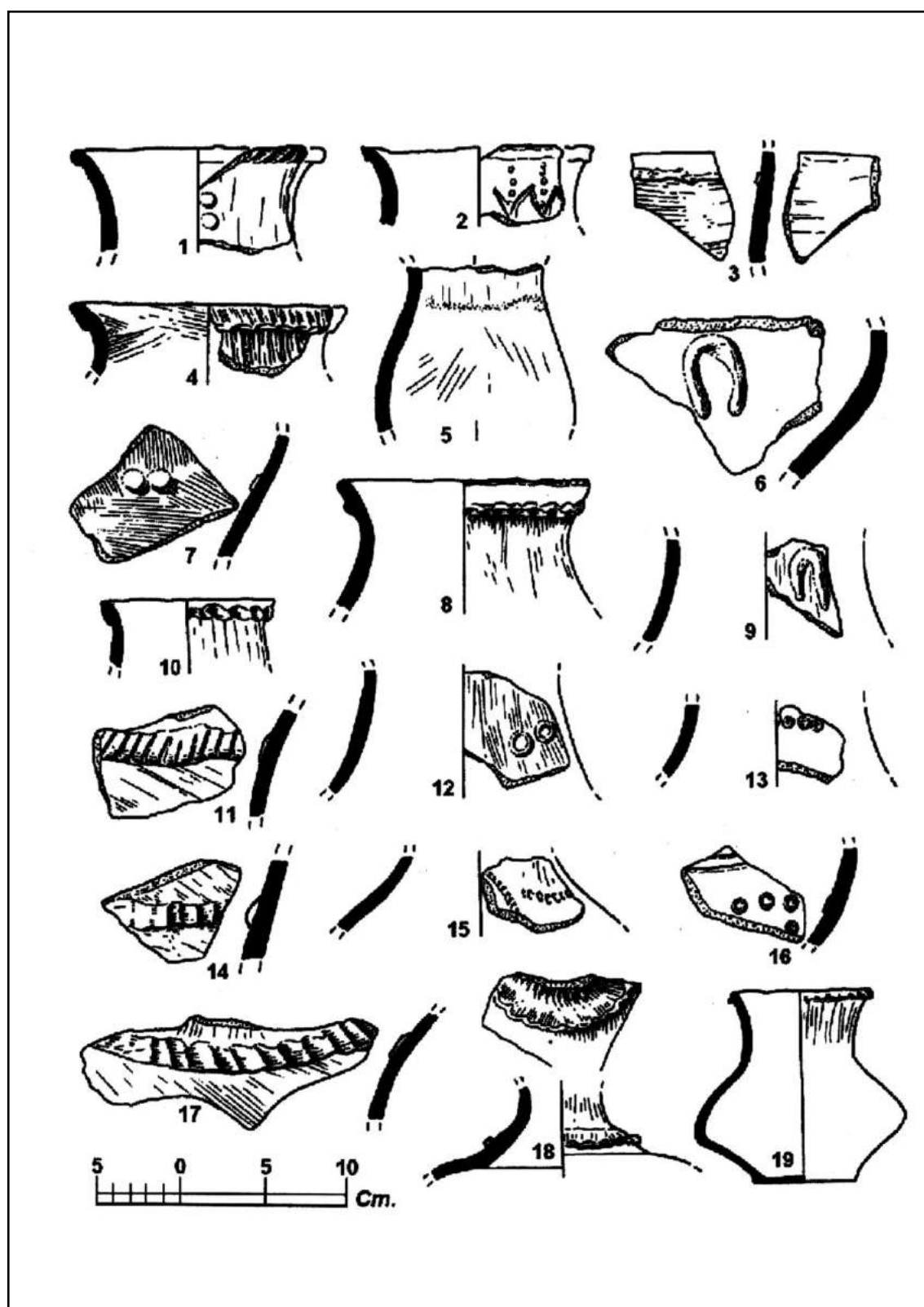


Fig. 4.1.4

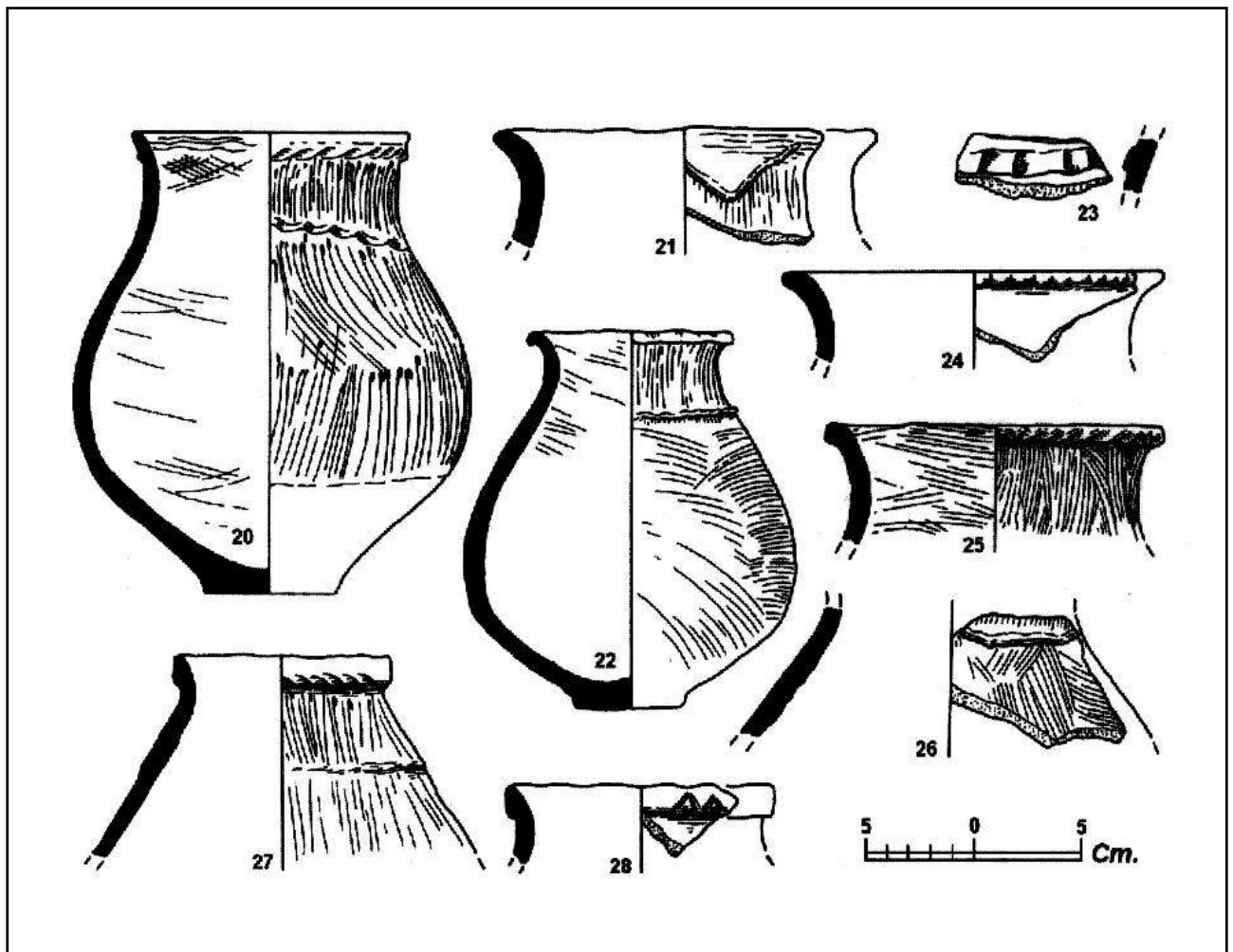


Fig. 4.1.5

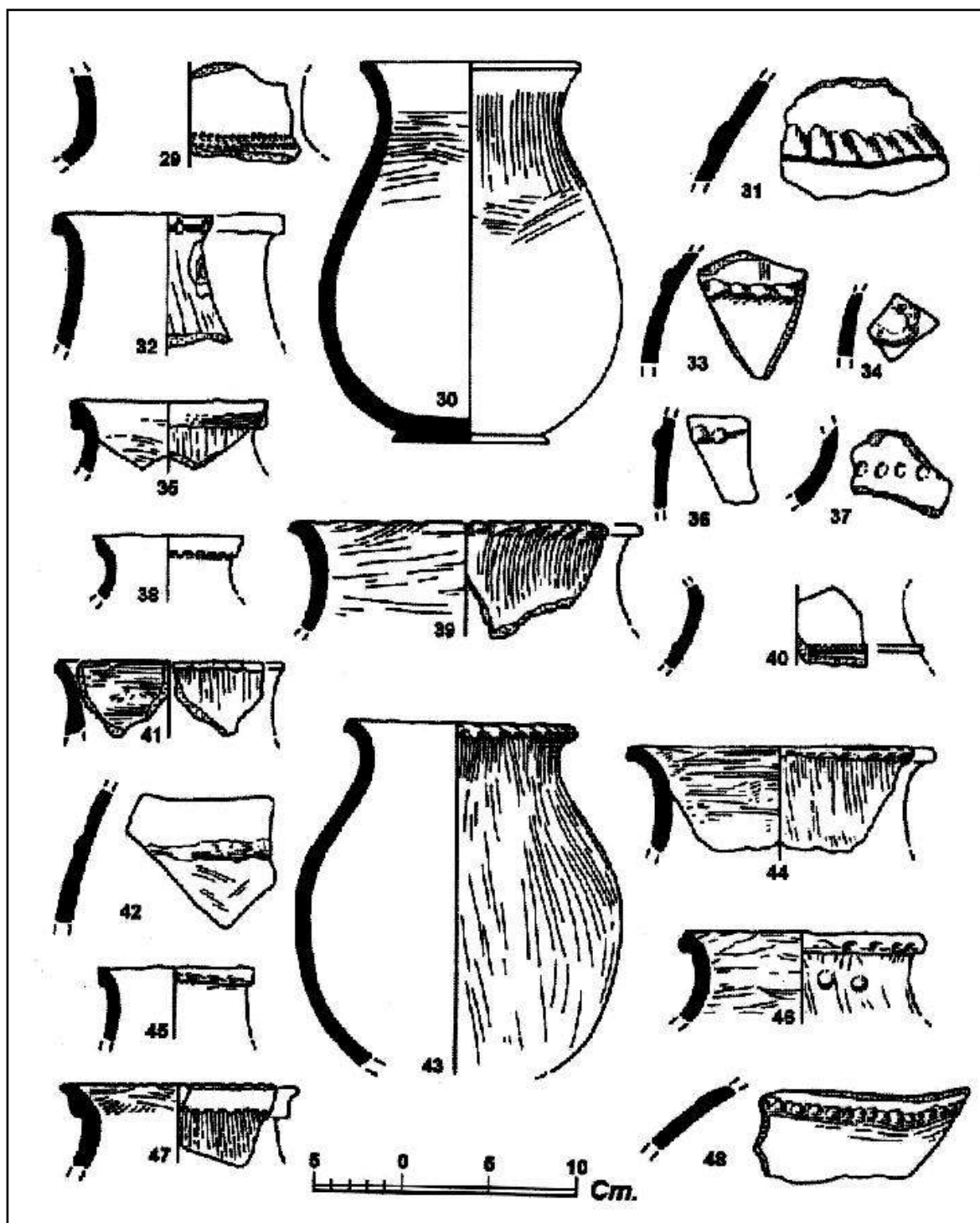


Fig. 4.1.6

C. Burnished Grey Ware:

Burnished grey ware is next to fine grey ware in prevalence, and consists of wider range in forms (see Fig. 4.1.7 nos. 1 to 10 and Fig. 4.1.8 nos. 11 to 21). Fired to shades of grey, grey to black and occasionally red or dull brown, burnishing is mostly external with the exception of a few cases. Burnishing marks are vertical as also horizontal. Fabric is medium to fine, and in many examples the finish is excellent. Tempering is in evidence, but to a lesser extent. The fracture is irregular. Except for a few incised marks in some cases, no surface treatment is in evidence: However on the dish-on-stand, which forms a class by itself in this category, There are incised figures of crane like birds.(no. 7). There is a hut like design on a distinctive bowl type (no. 18), a graffiti mark (no. 6) on a *voar* (*lota*) type, and an incised pattern on a fragment of a vase. Mat impressions are also in evidence in a number of specimens.

The principal shapes are long necked jars, (*surahi*, Kashmiri *surai* types), vases with prominent necks and rounded bodies, *lotas* (Kashmiri *voar* type), basins deep and shallow (Kashmiri *dulla* types), bowls (drinking cups, Kashmiri *pyala* types), and dishes (Kashmiri *tura* and *toak* types meant for rice dishes). In addition, there is the dish-on-stand which forms a deluxe category by itself.

The long necked jars (*surahi*, Kashmiri *surai*) are very distinctive in shape and form in the Neolithic Periods. The necks are pretty long, narrow, and concave or straight as in nos. 1 and 5. The mouths are comparatively wider in a few cases. The most distinctive long necked jar types are nos. 2, 3 and 7. The height of neck is 25 cm. in no. 2, 15.5 cm. in no. 3, and 22 cm. in no. 7. External burnishing is fine. Compared to narrowness of the neck, the mouths are proportionately wider, being 19 cm. in no. 2, 22 cm. in no. 3, and 18.9 cm. in no. 7.

Distinctiveness in shape, fabric and finish indicates that these may have been special purpose pots, perhaps for drinks during some ceremonial and communal functions. The *surahi* types must have been utilized primarily for liquids as modern analogy suggests. In this category also lie nos. 8, 9 and 10, which are small types. Except for an oblique incised pattern on the shoulder in no.3, no surface decoration is in evidence in this class of wares. In no. 6 there is a graffiti mark.

Besides the above types, there are dishes (Kashmiri *toak* types), till recent times such types were used as dishes for rice, especially during public functions, when metallic plates and china wares were not available in abundance. The poorer class still uses these for similar purpose in the rural areas. Nos. 12, and 12a are burnished from

inside, while in most of the other specimens burnishing is external. In this category also lies no. 15 which is a distinctive Kashmir *tura* type dish with incised figurines of crane like birds on its internal as well as external surfaces. On the internal surface there are four widely spaced incised figurines of crane like birds, and on the external three figurines.

Bowl types nos. 14, and 14a are in fine fabric, simpler in form, and without any surface decoration. However, there is a distinctive bowl type (no. 18) which does not conform to the normal shapes, and has an incised pattern (probably a hut) on its external surface. It is solid, has the feel of stone ware, and is mat impressed showing herring-bone pattern. Its plan is distinctive, rectangular at the top with a circular dip in the central part, sides tapering off and terminating in a round disc base. Its finish is excellent; surfaces are burnished externally and internally. This is one of the few specimens in which the entire surface is burnished. The vase may have been meant for use on a special occasion, or else by a special person. The bowl (Kashmiri *pyala*) and the *lota* (Kashmiri *voar*) types are of normal variety (nos. 11, 20, 19, and 19a). No. 21 is a fragment of a vase in Burnished ware. The description of assorted pottery is given below:

1. Jar in burnished ware, rim and base broken, long convex neck, body rounded to elliptical profile. Surfaces are dull brown. Its outline suggests a Kashmiri *surai* (*surahi*) type. It is of fine and thin clay showing indifferently fired brownish core. No surface treatment is in evidence. It is burnished externally, burnishing marks being vertical as also horizontal in parts. Period II B.
2. Jar in burnished ware with an out curved featureless rim, wide mouth, long, almost straight and narrow neck, ribbed on the shoulder, rounded to elliptical profile smoothly terminating into a relatively small disc base. Surfaces are brown. It is the tallest jar with the longest neck from the site. clay is fine, shows external burnishing. Its mouth is 19 cm wide; width of neck at the top below the mouth is 13 cm, in the middle 9.5 cm, and near the shoulder and at the base 9 cm. Height of the neck is about 25 cm. Its total height is about 52 cm. Its shape suggests a distinctive *surai* (*surahi*) type. Period II B.
3. Jar in burnished ware with a wide mouth, splayed out and externally narrowly thickened rim, convex neck tending to be straight below, rounded profile terminating smoothly in a small disc base. There is a ribbed band like formation

on the shoulder with a nail incised pattern. Surfaces are dark grey and clay surface is fine. Burnishing is nice and externally executed. Walls are relatively thick in relation to other tall jars. Its total height is 44.5 cm, height of neck 15.5 cm, mouth is about 22 cm in diameter, and the narrowest part of neck as well as base measure 9 cm in diameter. Unstratified.

4. Vase in burnished grey ware with splayed out thinned rim, convex neck, bulbous to rounded profile smoothly terminating in a disc base clay surface is fine and thin, externally entirely burnished, internally only rim and part of the neck, burnishing marks being vertical. In form it is a Kashmiri *voar* (*lota*) type, although its neck has been fashioned after *surai* (*surahi*) type. It may have been used both as a *voar* (*lota*) and as a small *surai* (*surahi*). Period II B.
5. Jar in burnished ware, mouth and rim broken. It has a long constricted neck, rounded to elliptical profile, smoothly terminating in a relatively small disc base. Its outline suggests a *surai* (*surahi*) type. Its external surface is dark grey while internal one dull brown. Burnishing is external, burnishing marks are vertical. Its fabric is fine, and subjected to limited tempering. Unstratified.
6. Vase in burnished ware with an out curved featureless rim, short concave neck, and shoulder bearing graffiti. Its globular profile terminates smoothly in a slightly mat impressed disc base. Surfaces are dull grey. In form it is a Kashmiri *voar* type. It is of fine clay surface showing partly oxidized light brown core. Burnishing is external, burnishing marks being vertical. Period II B.
7. Upper part of a broken jar in burnished ware with an out curved featureless but slightly thinned rim, wide mouth, and long convex neck. External surface is light grey, inner dark grey in central portion. clay surface is fine, but core is unoxidized smoky grey. Burnishing sweeps are vertical. There is a rib like formation on the narrowest part of neck, where it is 6.9 cm in diameter, no other surface treatment is in evidence. Neck is about 22 cm high, and mouth measures 18.9 cm in diameter. Unstratified.
8. Upper fragment of a miniature jar type in burnished ware with splayed out rim, relatively longer neck. Surfaces are dark grey. Outline suggests a *voar* (*lota*) cum

surai (*surahi*) type. clay fabric is fine and limited tempering is in evidence. Burnishing on entire external surface as well as on part of rim internally, burnishing marks being horizontal. Closing stage of Period IIA.

9. Upper fragment of a miniature jar type in burnished ware with flaring mouth and thinned rim, long convex neck. Surface is dull brown externally and red internally. Externally and internally burnished, burnishing marks being horizontal. clay is fine and thin, core indicates limited tempering. Closing stage of Period IIA.
10. Upper fragment of a jar in burnished grey ware with a featureless and internally thinned rim and a long neck. Its outline suggests a Kashmiri *surai* (*surahi*) type, albeit its mini version. External surface is dark grey, while internal one is dull grey. clay is fine and thin, limited tempering is in evidence. External surface is nicely burnished, burnishing marks being vertical. Internally there are slight traces of horizontally done burnishing in upper part of neck up to the rim. Closing stage of Period IIA.
11. Broken bowl in burnished ware with a featureless rim. Surfaces are dull grey with dark patches on external surface. clay is fine, tempering is in evidence. It is burnished externally and internally. Burnishing marks are vertical externally. In shape it is a typical Kashmiri *pyala* (drinking cup) type still in use for drinking purpose especially in the villages of the Valley. Period II B.
12. Dish in burnished ware with a featureless rim, rounded profile, sagging to a partially mat impressed disc base. Surfaces are dull brown; clay is relatively coarse and thick, core being unoxidized smoky grey. It is burnished internally, burnishing marks being horizontal. In shape and outline it is a Kashmiri *toak* (dish) type, which was in use till recent times for eating cooked rice etc., generally during marriages, especially when metallic or china ware was not available for public functions. Closing stage of Period IIA.
- 12a. Dish in burnished grey ware with a thickened featureless rim, rounded profile sagging to a disc base. clay is relatively thicker though not coarser. In shape it is a typical Kashmiri *toak* (dish) type. It is burnished externally and internally, burnishing marks being horizontal. Closing stage of Period IIA.

13. Broken bowl in burnished grey ware with a featureless rim. Surfaces are dark grey. Clay is medium; core is dull grey and indicates tempering with sand and crushed rock material. Only internal surface is burnished, burnishing marks partially worn out. Period II B.
14. Deep bowl in burnished grey ware with internally thinned vertical rim, globular profile terminating in a relatively small disc base. Surfaces are dull grey. It is of fine and thin fabric, core indicates indifferent firing. It is burnished externally, burnishing marks being horizontal. In shape it approaches a Kashmiri *pyala* (drinking cup) type still in use amongst the poor class. Period II B.
- 14a. Deep bowl in burnished grey ware having a slightly out curved internally thinned rim and globular profile. Its base is broken. Clay is fine and relatively thin, core is unoxidized smoky grey. Burnished externally, burnishing marks are horizontal. In shape and outline, it is a Kashmiri *pyala* (drinking cup) type. Closing stage of Period IIB.
15. Partly broken dish in burnished grey ware with an internally bevelled rim and rounded sides smoothly terminating in a small disc base. Surfaces are dull grey, Clay is fine, and core is partly oxidized smoky grey. Burnished externally, burnishing marks are horizontal. It is the solitary example ornamented with incised figurines of crane like birds on its internal as well as external surfaces. On the internal surface there are four widely spaced figurines of birds incised horizontally parallel to the inner edge of the pot, showing beak of each bird behind the tail of another in clock-wise direction. Externally there are three incised figurines, of which two, shown perpendicularly, are closely spaced with beaks almost touching the rim, while the third, opposite these two on the middle section of the dish, is incised horizontally parallel to the periphery of the pot in the clock-wise direction. Un-stratified.
16. Broken deep bowl in burnished grey ware with a disc base. Its surfaces are dull grey, Clay is medium, and tempering is in evidence. It is burnished externally, but burnishing marks are mostly worn out. Its base is mat impressed. Period II B.
17. Broken dish with an externally and internally thickened bevelled rim, externally bearing an excised pattern at regular intervals. Surfaces are dark grey, clay is

fine, and core indicates less tempering. It is burnished externally and internally, burnishing marks are horizontal. In shape, it is almost like a Kashmiri *tura* (deep dish) type still in use, generally for rice dishes. Period IIB.

18. Bowl in burnished grey ware with a distinctive shape, not conforming to normal shapes. It is solid, has the feel of stone ware, and its base is mat impressed showing herring-bone pattern. Its plan is distinctive, rectangular at the top with a rounded dip in the central part, sides tapering and terminating in a round disc base. Its finish is excellent. It has highly burnished dark grey external and internal surfaces. Its sides and base are fairly thick. It bears a linear geometrical motif on its external surface in the middle section. This is one of the few specimens in which the entire surface is burnished. The vase may have been meant for use on a special occasion, or else by a special person. It has an incised design (properly a hut design) on the external surface. The form, clay and finish indicate that it is a special type of a vase and may have been used on special occasions or by a special person. It is the only of its type found at the site. Closing stage of Period IIA.
19. Vase in burnished ware with a splayed out featureless rim, short concave neck, rounded profile gradually terminating in a disc base. Surfaces are dark grey. In form it is a Kashmiri *voar (lota)* type. Clayfabric is medium, core unoxidized smoky grey. External surface is burnished, burnishing marks being horizontal. Period IIB.
- 19 a. Vase in burnished ware with an out curved rim, concave neck, globular profile, smoothly terminating in a disc base. Surfaces are dark grey. In form it is a Kashmiri *voar (lota)* type. Fabric of clay is fine, core being unoxidized smoky grey. It is burnished externally, burnishing marks being horizontal. Closing stage of Period IIA.
20. Broken bowl in burnished ware with a slightly out curved thinned down rim and nearly straight sides. Inner surface is dull grey while outer one is dark grey. In shape it is like a typical Kashmiri *pyala* (drinking cup) type, still in use in Kashmir amongst the poor class. Its clay and firing are fine, core indicates limited tempering. It is burnished externally and internally, external burnishing marks are vertical, internal burnishing marks are partially worn out. Period IIB.

- 21.** Fragment of a vase in burnished ware. Surfaces are dark grey, clay is fine and core indicates limited tempering. It bears incised pattern showing three parallel horizontal lines sandwiched between zigzag lines forming triangular and inverted triangular patterns. Period IIB.

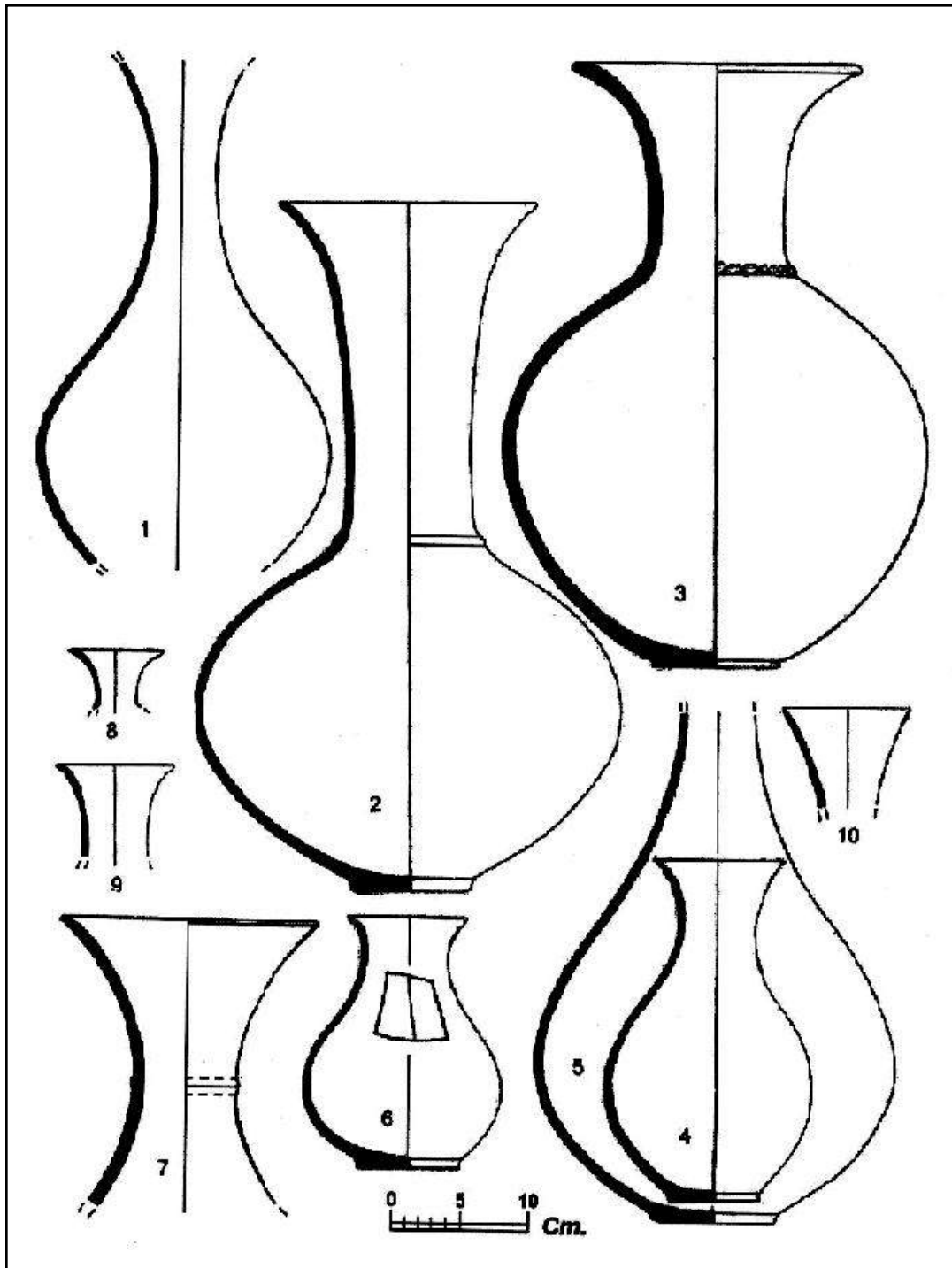


Fig. 4.1.7

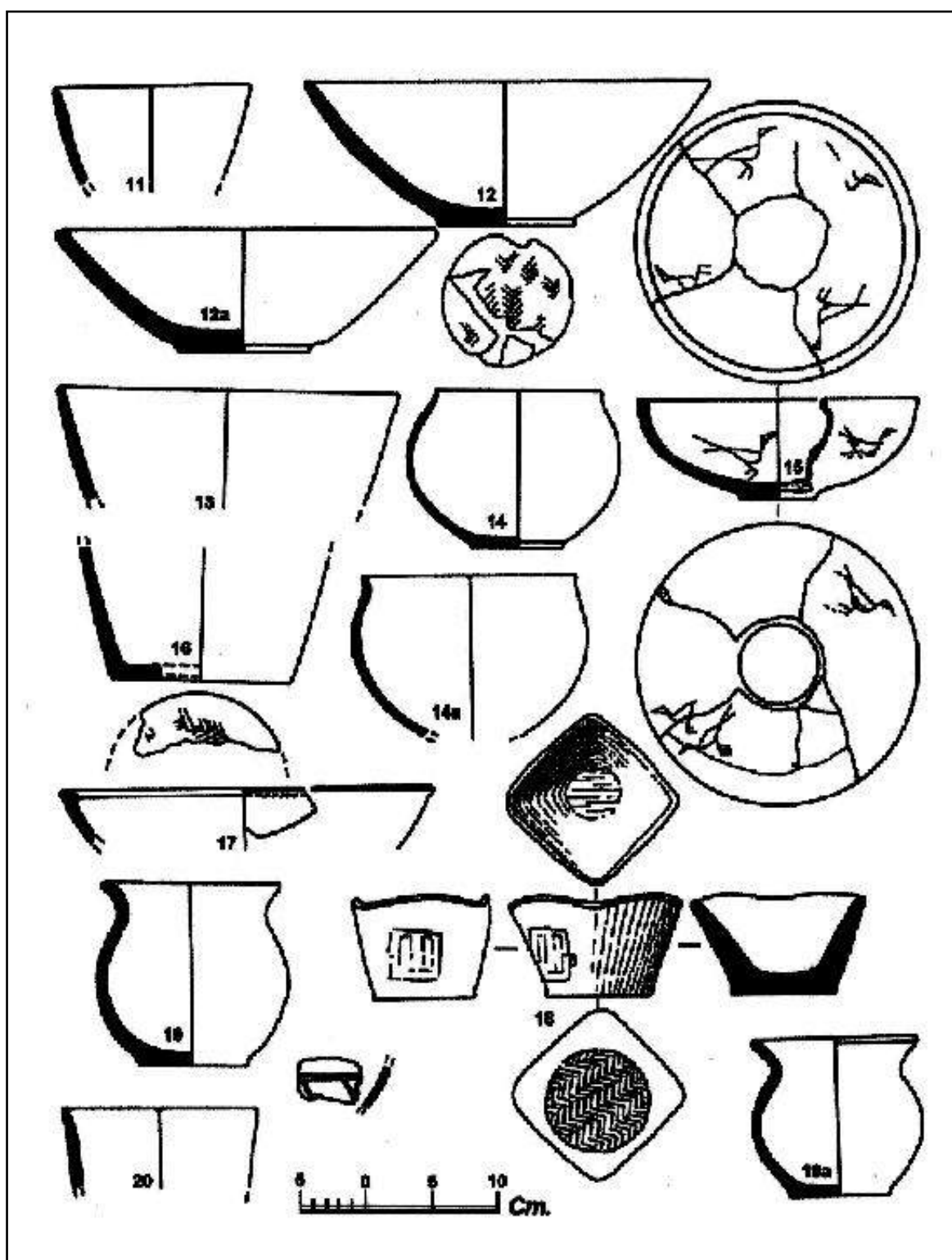


Fig. 4.1.8

D. Burnished Grey Ware (special type):

Burnished Grey Ware continues in the Megalithic and Historical levels, though in considerably restricted quantity. Interestingly, the distinctive long necked jars found uninterruptedly from the closing stage of Period IIA through Period IIB, have modest presence in the post Neolithic periods. The special type, among the unearthed examples of bowls, is dish-on-stand found from the Neolithic up to the Historical times. Unfortunately, no complete specimen has been found so far only fragments of dish, dish-base or stand are available (Fig. 4.1.9 nos. 1 to 21).

Broken fragments of dishes, stems and bases of dish-on-stand have been unearthed, but no complete specimen has been come across during excavations. Only a few dish fragments (nos. 3, 4, 5, 12, and 13) are available. However, complete picture can be assessed on the basis of nos. 5, 8, 12, 13, 14, and 16. From the dish fragments available, it is clear that these were medium to thick in fabric. Carefully fashioned stems with horizontally splayed out or sharply outcurved rim bases bearing incised or excised ornamental patterns, meant for heavy weight of surmounting dishes, indicate that these must have been utilized on important and/or ceremonial occasions. These are solidly built; their fabric is medium to fine in a few cases. Stems, mostly cylindrical in form, are hollow. The distinctive stems with intact stand are properly burnished externally (nos. 8 and 16). Designs are mostly excised, a solitary example is that of no. 6, incised or notched in full across the thickness of body to produce a pattern. In case of nos. 8 and 14, entire surface shows a combination of incised and partly excised linear patterns, approaching diamond shape, or resembling tip of a long leaf (no. 16) in outline, the lines being thinner at one end and broader at the other. A notable example is no. 9 showing four triangular cut-outs at equidistant points in the hollow stem. In nos. 1 and 2, there are excised patterns at equidistant points, showing triangle-in-outline or its inversion. Some specimens appear to be wheel made. Bases of the dish-on-stand are thick, sharply outcurved or horizontally splayed out, and grooved externally in a few case. A few wheel made examples have also been noticed. Some bases are ornamented. Thus, no. 11 bears a graffiti mark, no. 17; a series of excised circlets, no. 7, incised figures of two peacocks, one of which shows a prominent crown, only tail of the other is intact, while no. 20 bears brush marks. Burnishing is medium to fine.

Among the illustrated specimens below, nos.1, 6, 11, 13, 15, 17, and 20 come from the Neolithic Periods, nos. 5 and 14 from Unstratified deposits, nos. 2, 7, 8, 9, 12, 16, 18, 19 and 21 are from the Megalithic levels or Period III, and nos. 3, 4 and 10 are from the Historical levels or Period IV.

1. Broken stem of a dish-on-stand in burnished ware. Major part of its hollow stem is intact. It is grooved externally with irregular incised lines. Broken stem of a dish-on-stand in burnished ware, cylindrical in form, hollow, grooved externally with irregular incised lines. External surface is dark grey, internal dull grey. Fabric is fine, core unoxidized smoky grey, limited tempering in evidence. External surface is nicely burnished, burnishing marks being vertical. Intact surface of stem shows two sets of horizontal grooves with spaces in between, which are filled by four triangular-in-outline patterns excised at four equidistant points, two above and two below the upper set of grooves. Patterns below are at mid-point between the upper patterns
2. Broken stem of a shorter specimen of dish-on-stand in burnished ware. Its surface is dull brown, burnished externally, burnishing marks are vertical. Of fine claycore partly unoxidized smoky grey. Stem is hollow and grooved externally in central part. There are three inverted cone like excised designs equidistant from one another above, with traces of the same pattern, but in upright direction, repeated below the grooves. Patterns below are at mid-point between the upper patterns.
3. Broken base of dish of a dish-on-stand. Fairly thick, of medium clay core indicates tempering.
4. Broken base of dish of a dish-on-stand. Fairly thick, of medium clay, core indicates tempering. Almost same as above.
5. Dish fragment of a dish-on-stand in burnished ware, rim slightly bevelled externally. Surfaces are dark grey. Made up of fine clay core dull grey, limited tempering, burnished externally and internally. Internally, part of rim bears a row of three obliquely incised lines and a row of closely spaced incised circlets below it.
6. Broken hollow stem of a dish-on-stand in burnished ware, with prominent ribbed band like protrusion on the top of stem. Its external surface is dark grey, internal dull grey. Of medium fabric, core dull grey, indicates tempering. Dish base and sides of stem are quite thick. External surface is burnished, burnishing

marks being vertical. Stem is grooved in central part. Surface of stem carries triangular cut-outs at equidistant points with spaces in between to present an inverted triangular-in-outline pattern above, and upright triangular-in-outline pattern below the horizontal band of grooves. However, only two cut-outs are intact above and traces of the same are found below the grooves.

7. Broken lower part of stem of a dish-on-stand in burnished ware. Externally burnished surface is dull grey with dark patches; burnishing marks are partially worn out. Clay is medium, tempering is in evidence. A noteworthy feature of this fragment is its ornamentation showing incised figures of two peacocks, one of which shows a prominent crown, only tail of the other has survived.
8. Partially broken hollow stem of a dish-on-stand in burnished ware, cylindrical in form without curved base. Clay is medium, limited tempering is in evidence, and core partially unoxidized. External surface is dark grey and internal smoky grey. Burnished externally, burnishing marks vertical. Its entire external surface, barring horizontally splayed out thickened base, bears a combination of incised and partly excised linear patterns, approaching diamond shape.
9. Broken upper part of hollow stem of a dish-on-stand in burnished ware, surmounted by a ribbed protrusion. Its surfaces are dull grey, inner surface, however, being rough. Burnished externally, burnishing marks being vertical. Clay is medium, core unoxidized dull grey, tempering is in evidence. Surface of stem carries four triangular cut-outs at equidistant points with spaces in between to present an inverted triangular-in-outline pattern.
10. Middle part of stunted stem of a dish-on-stand in burnished ware. Clay is relatively coarse, core being unoxidized smoky grey. Surfaces are dark grey, external surface burnished, but burnishing marks are mostly worn out.
11. Fragment of the base part of a dish-on-stand in burnished ware. The stem and the dish are broken. The external surface is dark grey, while the internal surface is dull grey. The clay is fine, limited tempering is in evidence. Burnished externally, the burnishing marks are horizontal. There is a graffiti mark in between part of internal as well as external surface.

12. Broken dish probably belonging to a dish-on-stand with featureless rim in burnished ware of fine clay, external surface is dark grey, internal dull grey. Burnished externally and internally, burnishing marks horizontal.
13. Broken dish probably belonging to a dish-on-stand in burnished ware with featureless rim. Surfaces are dark grey of fine clay, core is dull grey and marginal tempering is in evidence. Nicely burnished inside, traces of external burnishing also, burnishing marks horizontal. Only a limited number of such dishes have been found.
14. Broken hollow stem of a dish-on-stand in burnished ware. Clay is medium, core of dish is unoxidized smoky grey, while that of stem dull grey. Outer surface dark dull grey, burnished, burnishing marks being vertical. Entire surface of stem bears sharply pointed long excised lines approaching mirror reflected triangular pattern.
15. Fragment of an out curved base of a dish-on-stand in burnished ware. External surface is dull grey, internal dark grey, and core dull grey. Of fine clay externally burnished, burnishing marks are mostly worn out. Entire extant external surface is ornamented with excised pattern representing alternate upright and inverted cones.
16. Broken hollow stem of a dish-on-stand in burnished ware, cylindrical in form without curved base. Of fine clay, external surface is dark grey internal dull grey. Burnished externally, burnishing marks are vertical. Entire external surface is ornamented with excised design resembling tip of a long leaf arranged vertically approaching a column.
17. Base fragment of a dish-on-stand in burnished ware. External surface is dull grey, internal dark grey, burnished externally. Of fine fabric, limited tempering in evidence. Bears schematic representation of excised circlets.

18. Fragment of base of a dish-on-stand in burnished ware. Of medium clay, core unoxidized smoky grey, tempered with crushed rock material. External surface is dull brown, internal dark grey. Externally burnished, conspicuously grooved base is sharply out curved with a splayed out thickened rim base.
19. Fragment of sharply out curved splayed out base of a dish-on-stand in burnished ware. Clay is fine, core dull grey, tampering is in evidence. External surface is dark grey, internal dull grey. Burnished and grooved externally, burnishing marks are horizontal.
20. Base fragment of a dish-on-stand in burnished ware, with splayed out thickened rim, so far the biggest base in this type. Surfaces are dark grey, clay is fine and tampering is indicated. Burnishing marks on external surface are worn out, partial burnishing on internal surface, burnishing marks being horizontal. In addition obliquely done fine brushing is also in evidence externally just over thickened rim base.
21. Fragment of sharply out curved splayed out base of a dish-on-stand in burnished ware, grooved externally with spaces in between. Of fine clay, core is dull grey, limited tempering in evidence. Surfaces are ashy grey, burnished externally, burnishing marks are horizontal.

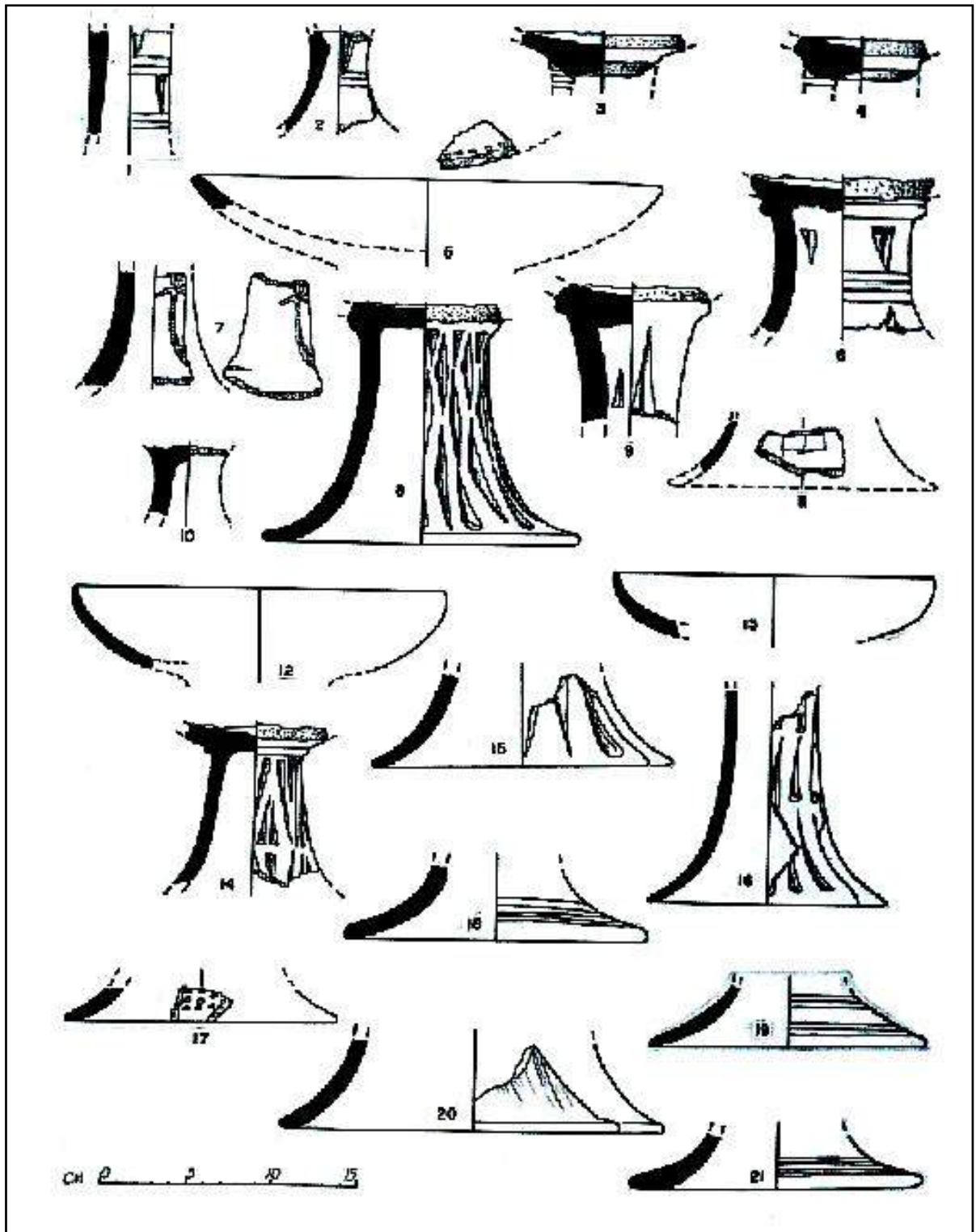


Fig. 4.1.9

E. Gritty Red Ware:

Gritty Red ware is the most distinctive pottery of the Megalithic Period. Though a few specimens in this ware have been found in the Neolithic Period IIA and a greater amount in various levels of Period IIB, but it is the dominating ware in Period III, i.e. the Megalithic Period. The clay is more often coarse or medium or coarse to medium and the pottery fractures irregularly. Firing is generally indifferent, also indicated by unoxidized core portions. Mostly coarse sand, pieces of quartz, and occasionally stone grit have been used in the mix. The pottery is mostly handmade and generally in strip technique. In some cases neck portion appears to have been turned on a slow wheel (Fig. 4.1.10 nos. 1 to 9, Fig. 4.1.11 nos. 10 to 12 and Fig. 4.1.12 nos. 13 to 22) .

The principal shapes are Kashmiri *noats* (pitchers), *tsoads* (small pitchers), *voars* (*lotas*), *pyala* (bowls) type, and few smaller *mathas* (storage vessels) and *taok* (dish) types. Few types have some sort of reddish slip on it which has partially worn out. The bases of bowls and *taok* (dish) types do not have mat impression. While most of the specimens are devoid of any surface decoration, few carry brush marks on the neck as also on the body externally in a few cases. One of the bowls indicates that red ochre was stored in it. Though, the ware is obviously typical of the Megalithic Period, its use continued during the Post Megalithic Period in a limited manner. It is apparent that the principal types are *mathas* (storage vessels), *noats* (*gharas*), *voars* (*lotas*), *tsoads* (small *gharas*) and *pyalas* (drinking cups). The range in forms is thus limited compared to what has been found in the Neolithic Periods. Conspicuously missing are the long necked jars in this ware which are so prominent in the previous Periods. The decorative features in the form of varied pinched patterns popular in Grey Ware, incised or excised patterns, or the brush marks are mostly out of trend. The quality of the ware is not upto the mark as the clay is coarse and , indifferently fired. Whether a vase is a *tsoad* or a *voar*, depends primarily on the size and no other distinguishing features are involved. The colour is mostly dull brown with dark patches in some cases. In a few specimens it ranges from dull brown to red. The important types are described below.

In the illustrated types, 3 and 20 come from the Period IIB, nos. 1,2,4,5,6,7,9,10,12,13,14,15,16,17,18,19 and 22 are from Megalithic levels or Period III, while 8 and 11 are from Historical levels, no. 21 is from an Unstratified deposit.

1. Vase in gritty red ware with a flaring featureless rim, comparatively wide mouth, high concave neck, globular body smoothly terminating in a small but thick disc base. In shape it is a Kashmiri *noat* (*ghara*) type. The core indicates coarse sand

and small grit as fillers. The surface is dull red. It could have been used as a storage jar or for storing water as a noat normally is.

2. Vase in gritty red ware with an out curved featureless rim, proportionately a broader mouth, high concave neck and globular profile terminating in a disc base. The surface is dull red. In shape it is a Kashmiri *voar (lota)* type. The vase is of coarse clay indifferently fired showing partly oxidized gritty core and is devoid of any surface treatment. Externally the portion below the neck bears vertical weed marks rather haphazardly done whereas there are brushing marks obliquely done on the body.
3. Vase in gritty red ware with an out curved featureless rim, comparatively a wider mouth, short concave neck and approximately the rounded profile terminating in a wider disc base. In shape it is a variant of Kashmiri *voar (lota)* type. The surface is dull brown. It is of medium clay, indifferently fired with a dull grey core. Apart from coarse sand and grit, mica particles are in evidence in tempering.
4. Vase in gritty red ware with an out curved featureless rim, high concave neck and bulbous to rounded profile. The mouth is comparatively broader. The surface is dull red. The base is broken. It is of coarse clay uncaringly fired gritty red core and is devoid of any surface treatment. In shape it is a Kashmiri *tsoad* type (small *ghara*) even now in use.
5. Vase in gritty red ware with an out curved featureless rim, comparatively broader mouth globular profile terminating in a disc base. The surface is dull red. The walls are pretty thick. It is of coarse clay indifferently fired red core. In shape it is a Kashmiri *tsoad* (small *ghara*) type.
6. Vase in gritty red ware with an out curved featureless rim, concave neck and rounded to bulbous profile. The base is broken. The surface is dull red without any treatment. It is of coarse clay showing oxidized core. Externally there are a few vertical weed marks on the neck upto the shoulder level, indicating marginal brushing. In shape it is a Kashmiri *voar (lota)* type.

7. Vase in gritty red ware with an out curved featureless rim, concave neck, rounded profile terminating in a disc base. The base is mat impressed. The surface is dull red. It is of coarse and thick clay indicating indifferently fired with gritty core. The neck bears vertical brushing marks. In shape it is a Kashmiri *tsoad* (small *ghara*) type with a comparatively broader mouth.
8. Vase in gritty red ware with a constricted neck, globular profile terminating in a disc base. The surface is dull red. It is of medium clay showing oxidized gritty red core. The rim is broken. In shape it is a Kashmiri *tsoad* (small *ghara*) type.
9. Vase in gritty red ware with an out curved featureless rim, high concave neck and globular body terminating in a smaller disc base. The surface is dull red. It is of medium to thin clay showing oxidized gritty red core. In shape it is a Kashmiri *tsoad* (small *ghara*) type.
10. Vase in gritty red ware with an out curved featureless rim, high concave neck rounded body terminating in a comparatively smaller disc base. The surfaces are partially dull red and darkish externally in the upper part. It is of coarse clay, indifferently fired, indicating unoxidized gritty core with a large measure of coarse sand. The neck bears slight traces of haphazardly done horizontal brushing. In shape it is a typical Kashmiri *matha* (storage vessel) type even now in use, especially in the rural areas for storage of grains.
11. Vase in gritty red ware with an out curved featureless rim, concave neck, bulbous to rounded profile, terminating in a smaller disc base. In shape it is a Kashmiri *tsoad* (small *ghara*) type. The surface is dull red. It is of coarse clay, indifferently fired, indicating a gritty core, without any surface treatment. Externally the neck bears vertical marks of brushing.
12. Vase in dull red ware with an out curved featureless rim, high concave neck rounded body terminating in a comparatively smaller disc base. The surfaces are dull red with dark patches in the lower portion externally. It is of coarse clay, uncaringly fired, oxidized gritty core with a large amount of coarse sand in it.

The neck bears vertical marks of brushing. As above in shape, it is a typical Kashmiri *matha* (storage vessel) type even now in use.

13. Vase in red ware with featureless rim, flaring sides and everted disc base. In shape it is a flower vase type. Surfaces have been treated with a red slip. Of medium clay showing oxidized red core. Coarse sand is indicated in the mix, no grit is in evidence. Base is mat impressed.
14. Upper portion of a broken vase in gritty red ware with an out curved featureless rim, wide mouth, concave neck and a rounded profile. Its surface is dull red, of medium clay indicating proper firing and showing oxidized gritty red core. Coarse sand, a few pieces of mica and grit are indicated in the mix. External surface shows brushing, neck bears closely set vertical brushing marks, and haphazardly done horizontal marks below it. In shape it is a Kashmiri *noat* (pitcher) type, but its wide mouth makes it a storage vessel meant primarily for grains or seeds. This specimen has been found from top levels of a dwelling pit, which is disturbed, perhaps used during Period III for dumping.
15. Deep bowl in gritty red ware with a featureless externally thinned rim, flaring sides and everted disc base. Surfaces are red, treated with some sort of slip, partially worn out. Of medium clay, indifferently fired indicating an oxidized core with a lot of coarse sand in the mix. Base is mat impressed. In shape it is a Kashmiri *pyala* (bowl) type.
16. Upper portion of a broken vase in gritty red ware without curved featureless rim, wide mouth, and concave neck. Surface is dull red, of medium clay showing oxidized gritty red core, devoid of any surface treatment. Outline suggests a Kashmiri *voar* (*lota*) type still in use mostly in rural areas. From top levels of a dwelling pit used during Period III, perhaps for dumping.
17. Deep bowl in gritty red ware with a featureless externally thinned rim, flaring sides and thick mat impressed everted disc base. Surfaces are partly dull red and dull grey, of coarse clay showing indifferently fired gritty grey core, with a lot of coarse sand in the mix. In shape it is a Kashmiri *pyala* (drinking cup) type.

Similar cups with minor modifications are still in vogue in Kashmir especially in rural areas.

18. Upper portion of a broken vase in gritty red ware without curved featureless rim, wide mouth, and concave neck. Outline suggests a medium sized Kashmiri *matha* (storage vessel for grains, seeds or liquids) type. Of coarse clay, showing indifferently fired and partly oxidized core. Surface is dull red. Brim is decorated with a series of closely set oval-in-outline pinched pattern. From the upper levels of a Dwelling Pit, used during Period III.
19. Bowl in gritty red ware with an externally thinned featureless rim, thick flaring sides and mat impressed everted disc base. Surface is dull red, of coarse clay indifferently fired showing partially oxidized gritty core with large amount of coarse sand in the mix. Internally there are minor encrustations near the bottom indicating that red ochre may have been stored in it.
20. Bowl in gritty red ware with an externally thinned featureless rim, flaring sides and thick everted disc base. Surfaces are partially dull red and dark. Of coarse clay indifferently fired with a lot of coarse sand and grit in the mix. In shape it is a Kashmiri *pyala* (bowl) type.
21. Deep bowl in gritty red ware with a thinned featureless rim, flaring sides and everted disc base. Surface is dull red, of coarse clay indifferently fired showing an unoxidized gritty core with large amount of coarse sand used in the mix. In shape it is a variant of a Kashmiri *pyala* (bowl) type.

22. Deep dish in gritty red ware with a featureless rim, thick flaring sides and mat impressed small disc base. In shape it is a typical Kashmiri *toak* (dish) type, formerly used during public functions as a rice plate (*thali*), still in vogue in rural areas for the same purpose. Its surface is dull red, of coarse clay indifferently fired.

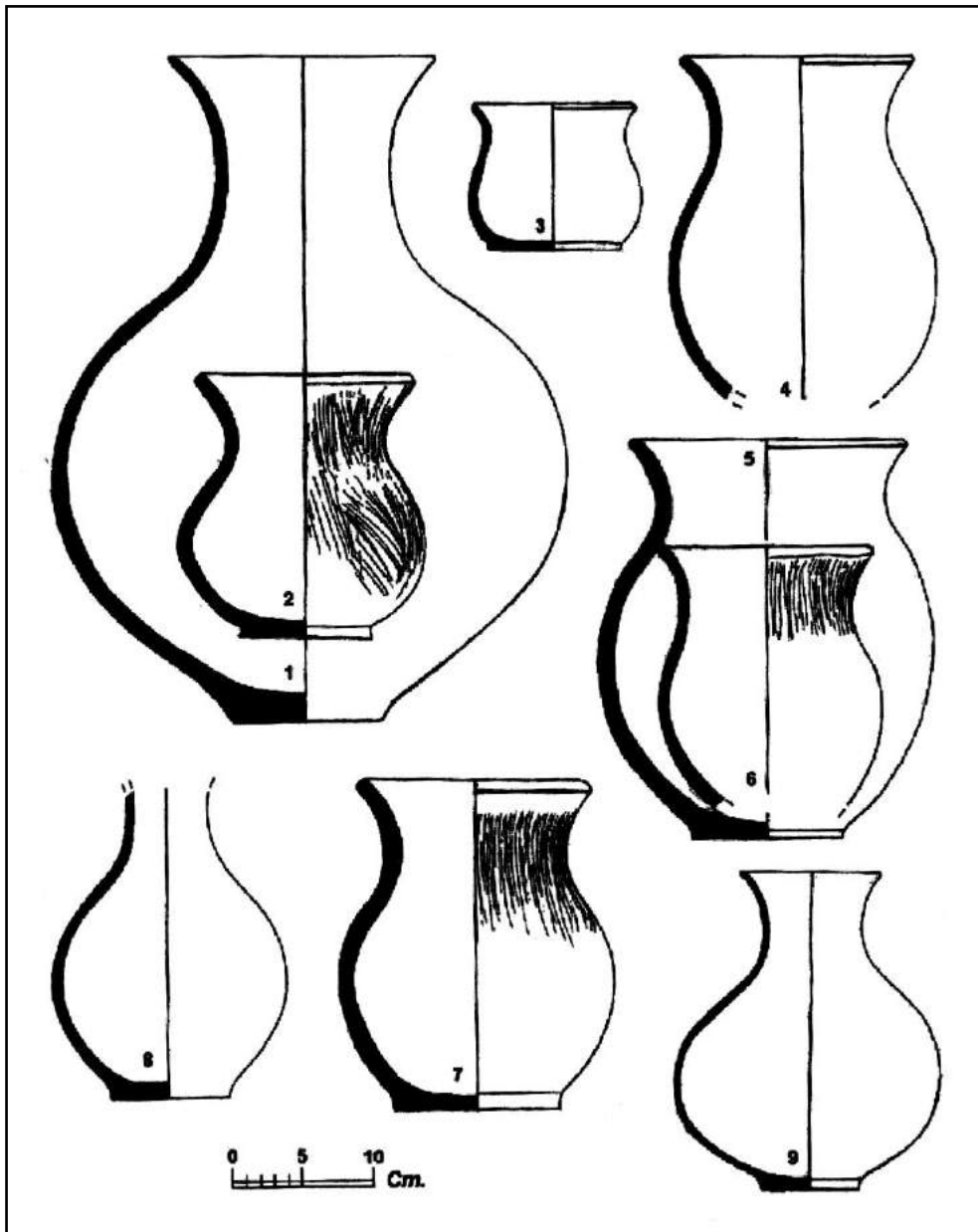


Fig. 4.1.10

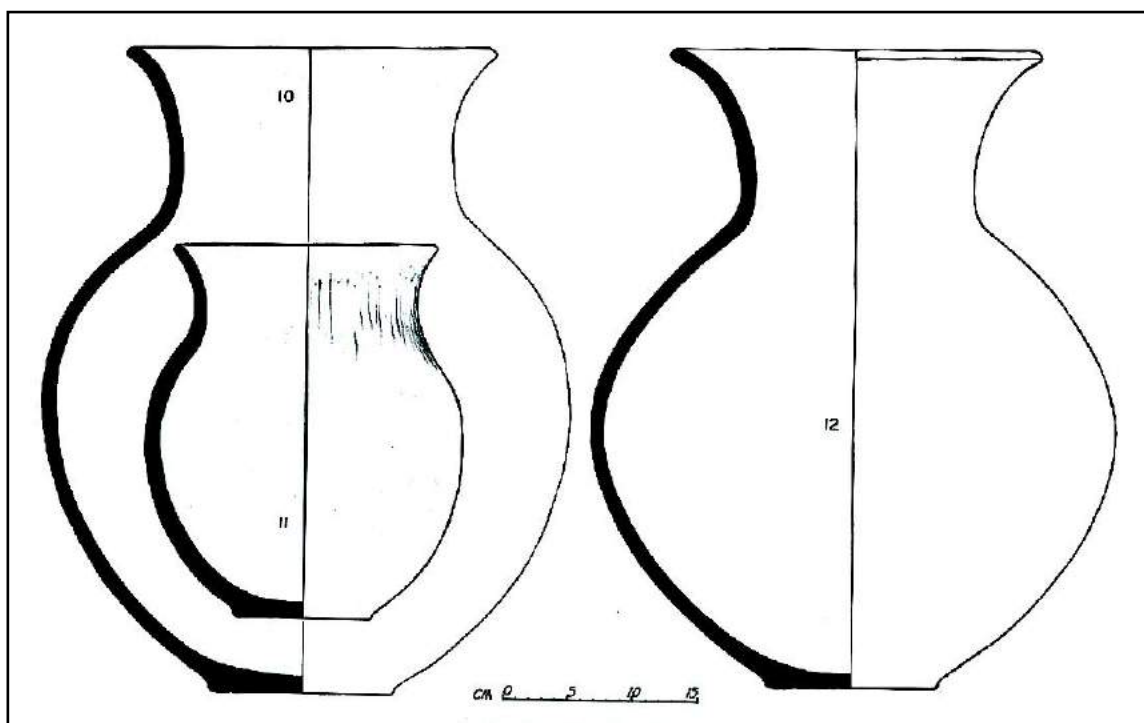


Fig. 4.1.11

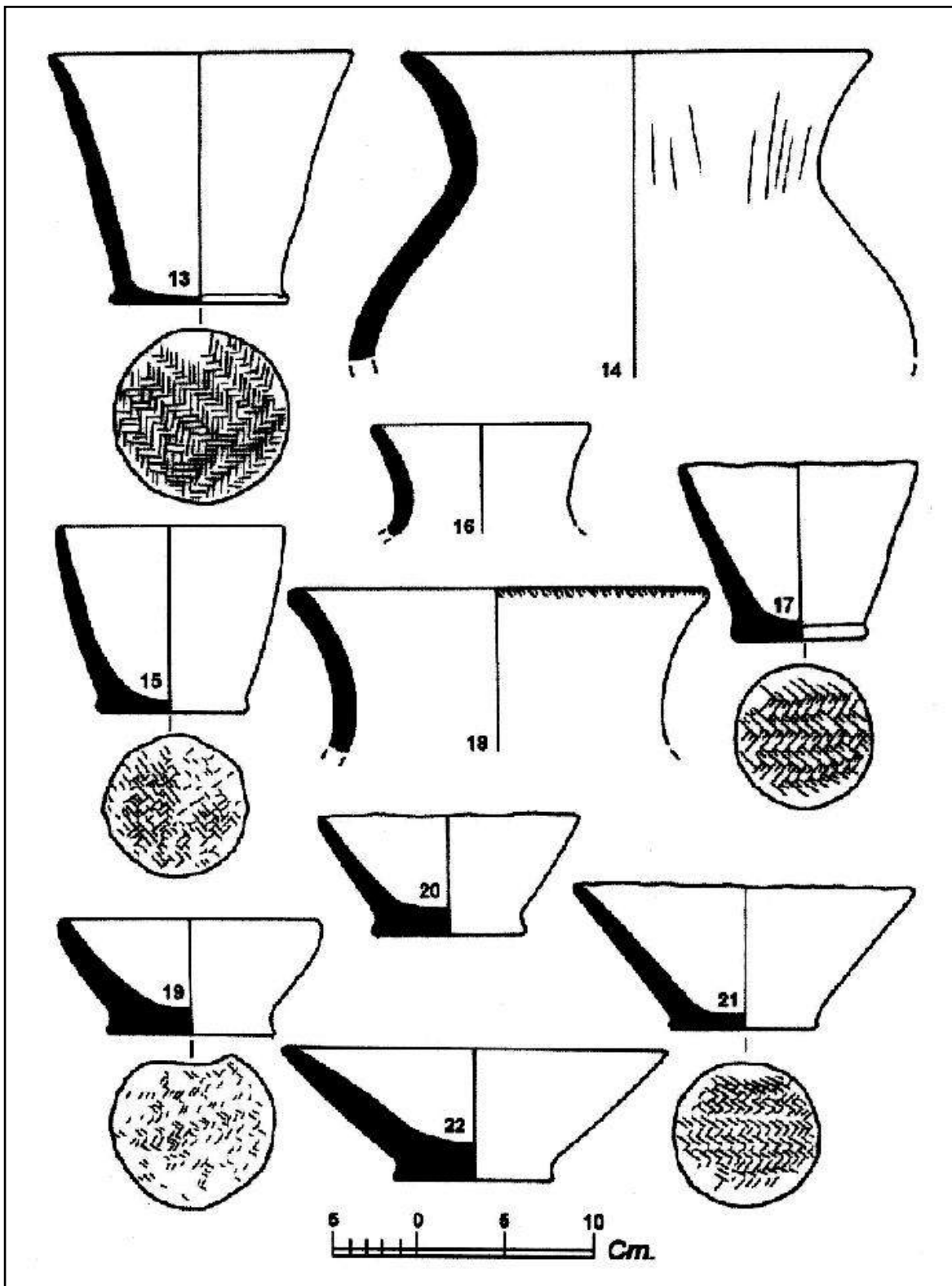


Fig. 4.1.12

4.2 STONE TOOLS

Excavations revealed that the Burzahom folks used a variety of stone and bone tools from the very beginning of the settlement. The stone tools were manufactured on Himalayan trap rock probably exploited from the Pirpanjal Range of the Kashmir Valley. Among the stone implements mention may be made of mace heads, mace head like objects, double-edged picks, wedges, hoes, sawing knives, chisels (category I and II), scrapers, double-tipped points, adzes, celts and harvesters. The detailed description of assorted tools in each type is given in different sections figured as A to M, as per classification.

A. MACE HEADS:

The excavations have exposed altogether one hundred and four (104) mace-heads, mostly broken, used by the inhabitants of Burzahom in different periods. The micro-wear examination of few specimens suggests that these mace-heads were used in hunting, especially for hitting and cutting. The distinctive types are the **disc type** and the club type.

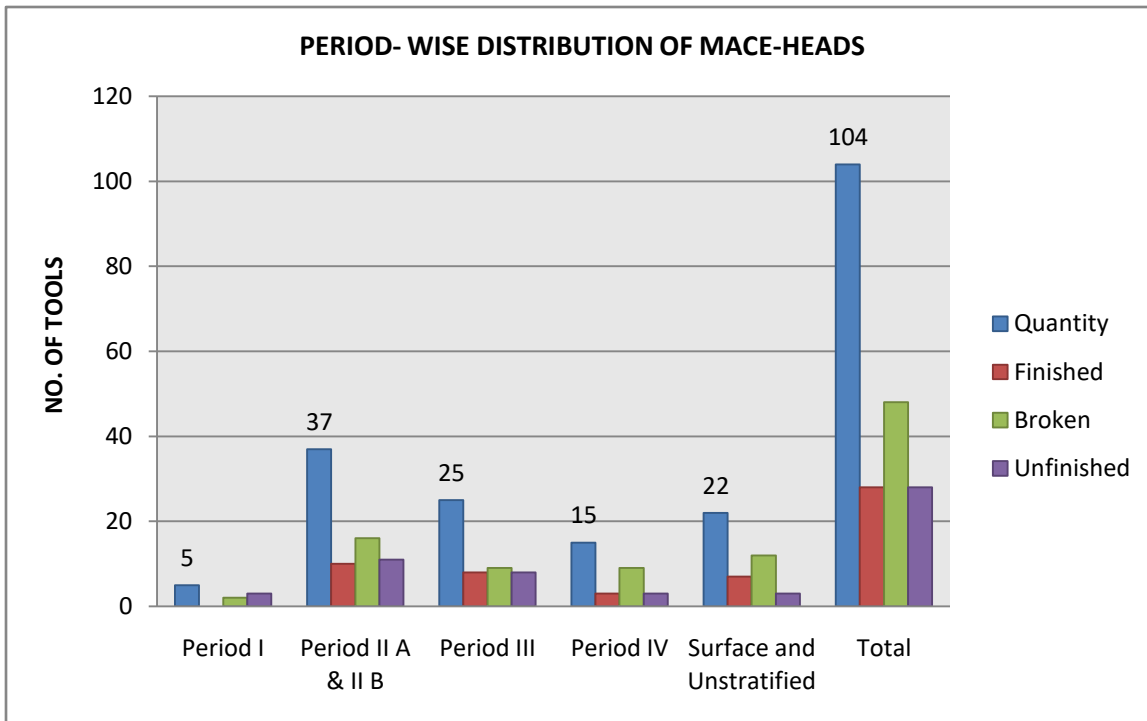
The disc types are small, medium and large sized and out-number the club type in statistics. Each type bears in its centre a perforation made through both the faces, hence hourglass like. The inner diameter ranges between 6 mm and 26 mm, and the outer diameter between 12 mm and 40 mm. The disc types are generally circular or nearly so in form, their diameter ranging between 59 mm and 170 mm, exclusive of those which are irregularly circular. A few specimens are elliptical to circular in form. The largest disc type (illustration No. 15) is probably having a diameter of 163 mm. The specimens that are circular or nearly so in form, show plano-convex, concavo-convex or lenticular sections. Their thickness varies from 10 mm to 26 mm. The surfaces of these tools are generally smooth, however a few scars and encrustations in some specimens are also in evidence. Faces are generally ground well and highly glossy, but specimens which are non-glossy have also been found. Working edges are marked by sharpness, secured by symmetrical bevelling, especially near the outer edge. Faces taper off smoothly from the periphery of the hourglass like central perforation to form a generally sharp cutting edge. In most cases, working edges are nicked and chipped due to use. Careful fabrication and sharpness of the working edges, which are nicked and chipped along with peripheral bruising and abrasions at various points, rule out the possibility of these being ring stones or weights for digging sticks.

The club type tools are infrequently found, four of which deserve mention, even though broken. These are mostly oblate, circular or elliptical in form and show spheroid section with hourglass like perforations. Their diameter ranges from 54 mm to 75 mm. Among these artifacts, an example (illustration No.5) of highly finished specimen betrays effectively dressed, smooth, nicely ground and glossy perforated area, indicating continuous wear due to hafting. In form, it approaches pear shape. As a hunting tool for dispatching the wounded game, or else as a personal weapon of war, it could be very effective.

Microscopic examination of the wear striations on few examples by Shri R.K. Pant, in the Physical Research Laboratory at Ahmadabad, has revealed that the tools were hafted, as evidenced in vertical striations on the central portions, where the diameter remains bare minimum. According to him, it appears that the remaining depressions surrounding the hafts were plugged by some devices as several streaks appear on the surfaces, bordering the perforations. Surfaces of the tool show an oily luster. The striations appeared on both the faces of these tools were mostly fine and silky with intermittent bold streaks. This clearly suggests that the sharp edge was utilized to hit and cut. Hence this type can rightly be termed as a mace-head and not digging weight.

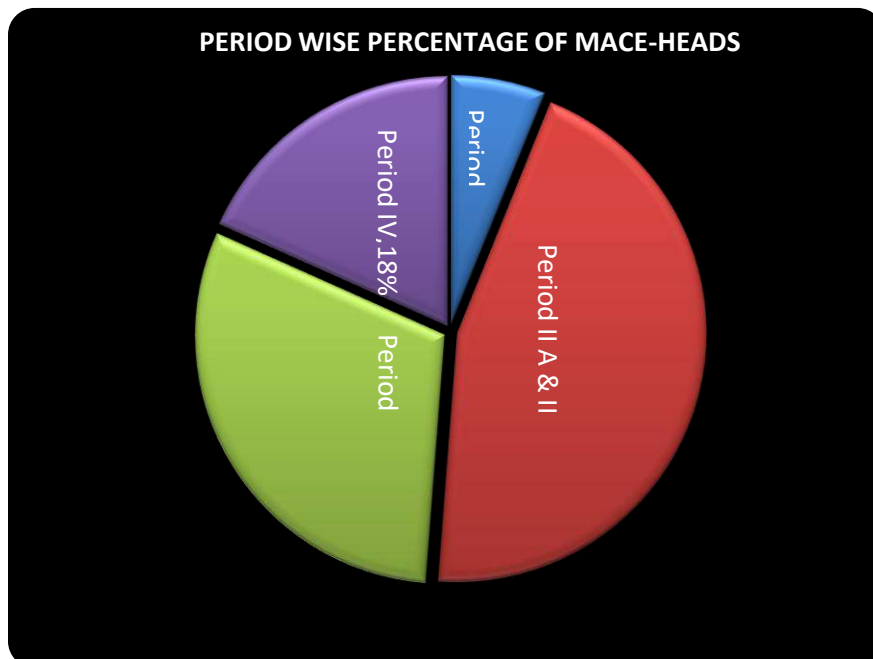
The period-wise distribution of 104 mace-heads mentioned above along with their present state of preservation is as follows:

<i>Period</i>	<i>Quantity</i>	<i>Finished</i>	<i>Broken</i>	<i>Unfinished</i>
<i>Period I</i>	05	-	02	03
<i>Period IIA & IIB</i>	37	10	16	11
<i>Period III</i>	25	08	09	08
<i>Period IV</i>	15	03	09	03
<i>Surface</i>	22	07	12	03
<i>Total</i>	104	28	48	28



The period-wise percentage excluding the surface finds works out as follows on the basis of the above data.

Period I - 6%, Period II A & II B - 45%, Period III - 31%, Period IV - 18%



Among 104 varied mace-heads 18 have been selected for illustrations (Fig. 4.2.1 nos. 1 to 9 and Fig. 4.2.2 nos. 10 to 18). There are only five specimens found in Period I, all broken, so these are not illustrated. Stratigraphically, from the Period IIA up to the Period IV, the preferred tools are figured as 1 to 18, therefore, nos. 1–7 belong to the Period IIA, nos. 8–12 fit in the Period IIB, nos. 13–16 incorporate in the Period III and nos. 17–18 belong to the Period IV.

No. 1: Disc type, half broken. Circular in form and Plano-convex in section, faces are nicely ground. Its one surface is smooth with minor scars, the other partially encrusted. The former is slightly convex, smoothly sloping from the periphery of the perforation to form a thin and sharp cutting edge, the latter is flat. Sharpness of the cutting edge is augmented by marked asymmetrical beveling on either face near the cutting edge. Perforation for hafting is made through both the faces, hence hourglass like. The cutting edge is highly glossy, rest of the surfaces poorly so. There is an evidence of peripheral bruising and nicking, perhaps due to use. The maximum thickness is 10 mm near the perforation and the diameter of the tool is about 100 mm. Period II A

No. 2: Disc type, broken, some 1/3rd portion is extant. Surfaces are smooth, nicely ground, and glossy. Even the perforated portion is fully glossy. It is circular in form, and concavo-convex in section. There is a sharp bevel right from the periphery of the hourglass like perforation on one face with a minor concavity in the central portion, and then rounded gentle beveling to form a working edge, which is sharp, chipped and abraded due to use. The other face is slightly concave and there is a gentle bevel near the cutting edge. Beveling on the whole is asymmetrical. Diameter of the perforation ranges between 21 mm and 30 mm and maximum thickness being about 19 mm. Period II A

No. 3: Disc type, complete, except for minor breakages, circular in form and rounded rectangular in section. Surfaces are smooth and flat except for a few chips off and non-glossy. Working edge is thick and rounded, slightly chipped due to use. Diameter of perforation runs from 13 mm to 20 mm, maximum thickness is 10 mm and diameter of the tool is 70 mm. Period II A

No. 4: Disc type, partly broken, circular in form, lenticular in section. Surfaces are smooth, but non-glossy. No marked beveling is in evidence. The working edge is fashioned like that of the preceding tool and bears traces of chipping, and abrasions. Inner diameter of the perforation is 19 mm and carries an evidence of proper smoothing

and uniformity. The anticipated diameter of the tool in its original form is 132 mm. Period II A

No. 5: Club type, broken, oblate-spheroid in section. Surfaces are smooth, nicely ground and glossy. The hourglass like perforation in the centre has been nicely affected. It is glossy perhaps due to continuous wear of the haft. Its inner diameter is 22 mm and the outer one is 32 mm on one face and 35 mm on the other. The maximum thickness is about 54 mm and diameter of the tool is 85 mm. Period II A

No. 6: Club type, broken, approximately circular in outline, oblate-spheroid in section. Surfaces are smooth but slightly scarred and glossy. The central perforation has an inner diameter of 19 mm, and the outer one of 26 mm on one face and 31 mm on the other. Its maximum thickness is 39 mm and diameter of the tool is about 60 mm. Period II A

No. 7: Club type, complete, circular to elliptical in form, oblate spheroid in section. Surfaces are smooth but non-glossy. Working edge is rounded and thick, one face is slightly flattened. The perforation has not been properly effected, its inner diameter is 18 mm and outer one is 40 mm at both the faces. Diameter of the tool is 64 mm and thickness being 31 mm. Period II A

No. 8: Disc type, complete, except for minor breakage on the working edge, circular in form, lenticular in section. Surfaces are smooth, nicely ground and glossy. Its working edge is moderately sharp and has been secured by symmetrical beveling near periphery of the perforation in the centre. The area around perforation has been leveled and then there is a sharp bevel up to the working edge on either face. Peripheral bruising, abrasions, nicking and chipping are observable. Inner diameter of perforation is 26 mm, which is the maximum in this category and the outer one is 31 mm. Diameter of the tool is 78 mm and thickness is 22 mm. Period II B

No. 9: Disc type, complete, circular to elliptical in form, irregular section but approaches flattened oval. Surfaces are rather rough, non-glossy, partially pecked and uneven. The central perforation is also irregular in form. No special workmanship is in evidence for shaping working edge which is fairly thick. Peripheral bruising is marginal. Diameter of the perforation ranges from 18 mm to 39 mm. Thickness of the tool is 23 mm and diameter of the tool is 84 mm. Period II B

No. 10: Club type, almost complete, slightly elongated in form, oblate-spheroid in section. Surfaces are smooth with minor encrustations and non-glossy. No special workmanship is in evidence for shaping working edge, which is rounded and fairly

thick. The perforation is crudely done in the center. It has an inner diameter of 8 mm only and the outer one is 40 mm on both the faces. Diameter of the tool is 75 mm and thickness is 35 mm. Period II B

No. 11: Fabricated on a flake, demonstrates a broken working edge, nearly circular in form; its surfaces are rough and scarred. No grinding is in evidence. Inner diameter of the perforation is 11 mm. Period II B

No. 12: Disc type, complete, except for some breakages in the cutting edge, which is partially damaged perhaps due to use. Peripheral bruising, chipping and abrading are clearly in evidence. Surfaces are smooth, nicely ground and glossy. The tool is circular in form and lenticular in section. Both the faces are convex. Its cutting edge is sharp and thin, affected by smooth beveling towards edge. Diameter of the perforation ranges from 20 mm to 35 mm. Thickness of the tool is 21 mm and complete diameter is 103 mm. Period II B

No. 13: Disc type, complete, surfaces are roughly chipped, deep scared, slightly encrusted, and uneven, partially ground and non-glossy. Working edge is chipped and blunt. Peripheral bruising is clearly in evidence. Diameter of the perforation ranges from 24 mm to 37 mm. Diameter of the tool is 110 mm and thickness being 22 mm. Period III

No. 14: Disc type, complete, surfaces are smooth, nicely ground and glossy. It is circular in form and lenticular in section. One face is partially flat, bevelled on the other face is sharp right from the periphery of the hourglass like perforation. Working edge is nicked, slightly chipped, and bruised due to use. Diameter of perforation ranges from 23 mm to 38 mm. Diameter of the tool is 90 mm and thickness remains 26 mm. Period III

No. 15: Disc type, half broken and remained the biggest specimen in the Burzahom collection. Circular in form, lenticular in section, its surfaces are partially smooth, scarred and encrusted. Its working edge is sharp, though broken, chipped and abraded. Sharp beveling is not in evidence at the working edge, but a gentle smooth symmetrical taper from the periphery of the perforation is clearly detectable. Perforation nicely executed uniform, due to proper smoothing. Its diameter ranges from 19 mm to 21 mm. Surfaces are glossy. Its thickness is 18 mm, while intact the diameter of the tool seems to have been 163 mm. Period III

No. 16: Disc type, almost circular in form, lenticular in section. Surfaces are smooth, flat, and non-glossy. No beveling is in evidence for the working edge which is nicked and chipped due to use. Inner diameter of the perforation is 8 mm. Period III

No. 17: Disc type, almost circular in form. Surfaces are rather rough and scarred, and non-glossy. Poor workmanship is visible in shaping the tool. The perforation is too small for effective hafting, its inner diameter being only 8 mm and the outer one range up to 29 mm. Only marginal beveling is in evidence for the cutting edge. Diameter of the tool is 75 mm and thickness is 20 mm. Period IV

No. 18: Disc type, complete, except for minor breakage, circular in form, lenticular in section. Surfaces are partially smooth and non-glossy. Working edge has been secured by smooth symmetrical beveling on either face, which is sharp, nicked, chipped and abraded due to use. The perforation has an inner diameter of 11 mm and the outer one of 18 mm on one face, and 16 mm on the other. Diameter of the tool is about 60 mm and its thickness being 13 mm. Period IV

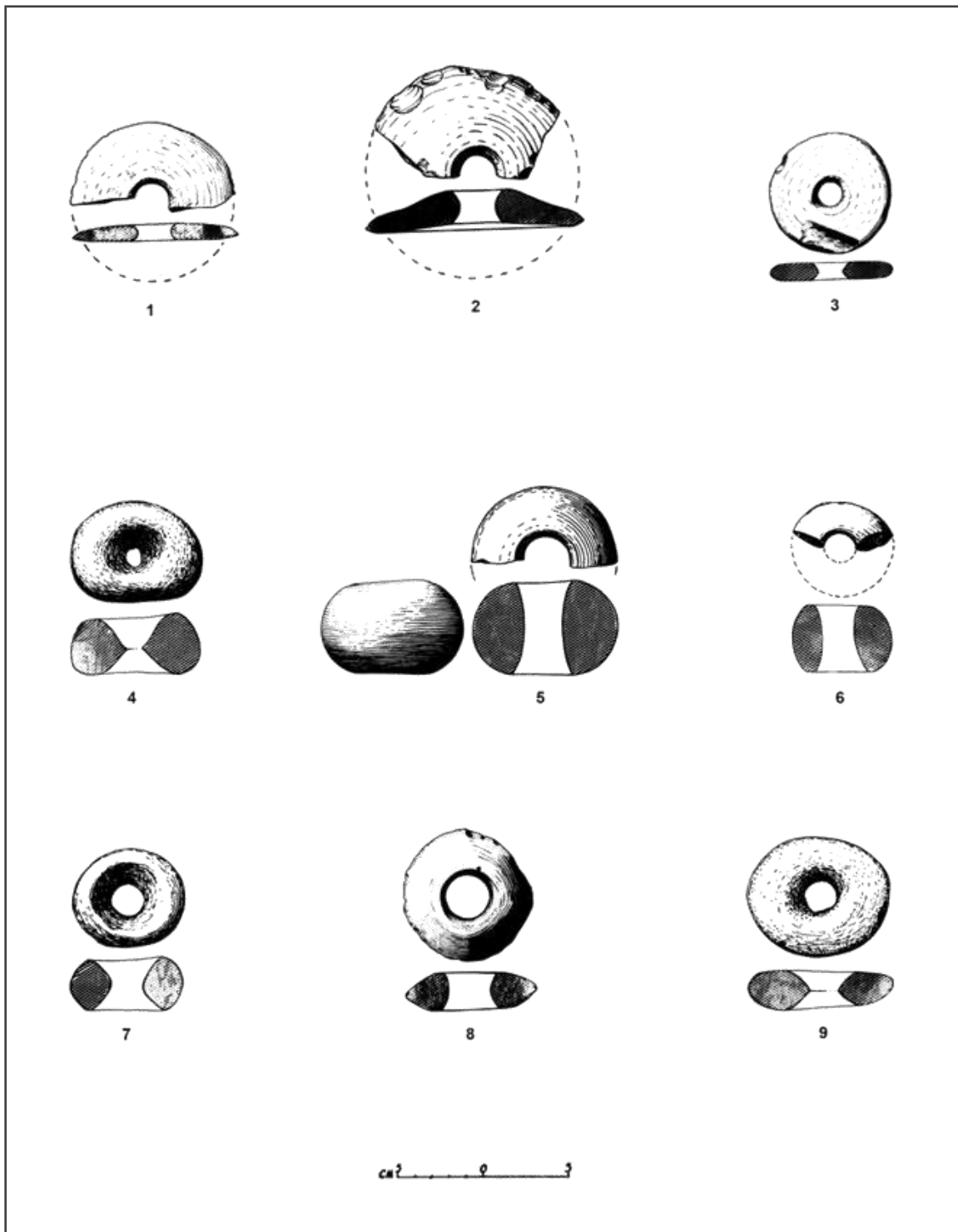


Fig. 4.2.1 Mace Heads

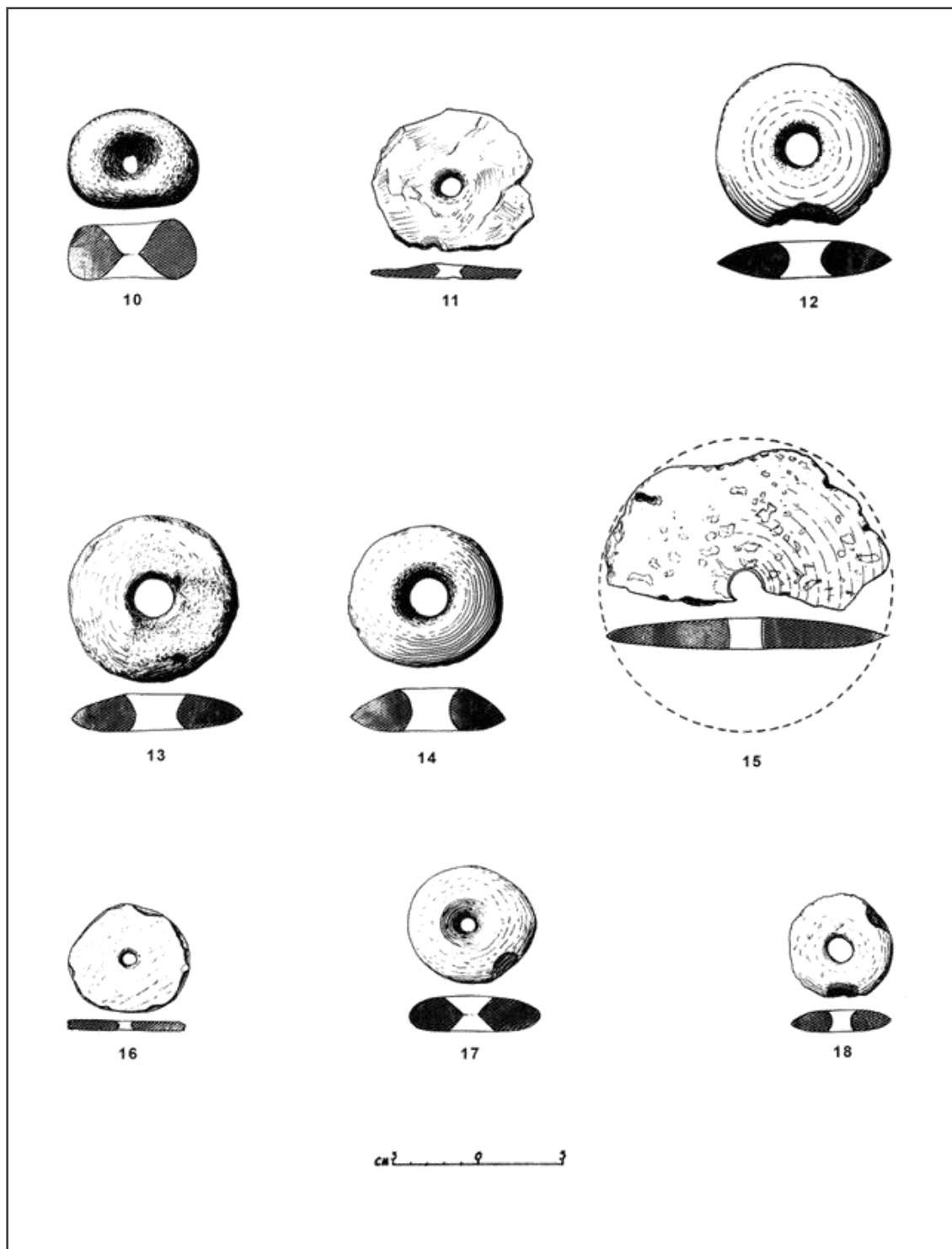


Fig. 4.2.2 Mace Heads

B. MACE- HEAD LIKE OBJECTS

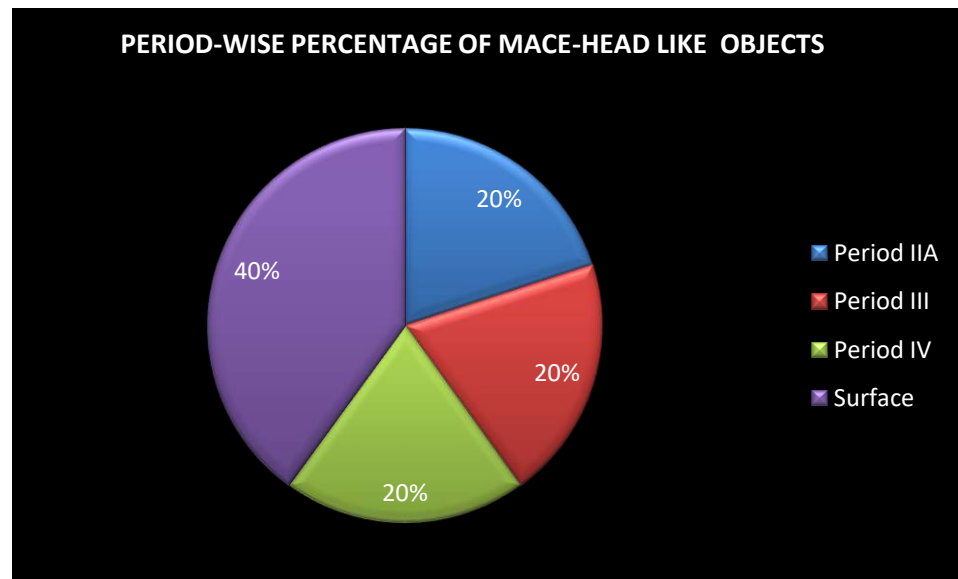
Six fragmented stone objects looking like mace heads have been found from various levels of Burzahom excavations, however, it is not clear whether these were used as such. Most of these tools look like normal mace heads, club or disc type in form, transverse in section, bearing an hourglass like perforation in the centre, which is bored through both the faces. Few have battered surfaces and peripheries (illustration Nos. 1, 4 and 5). Among these tools, the surfaces and perforated portions are ribbed in No. 4, its purpose is not clear. Its hourglass like perforation must have been effected with great effort in view of the thickness which is 59 mm in the central part. It is a solitary object of its kind from the excavations. In contrary, two other specimens (illustration Nos. 2 and 5) show an inner diameter of the perforation about 10 mm and 6 mm respectively which seems to be unsuited for hunting.

Among the six tools, five have been described (Fig. 4.2.3) as the other one is badly damaged. The period-wise distribution of 6 mace-head like objects along with their state of preservation is as follows:

<i>Period</i>	<i>Quantity</i>	<i>Broken</i>
<i>Period IIA</i>	01	01
<i>Period III</i>	01	01
<i>Period IV</i>	01	01
<i>Surface and Un-stratified level</i>	03	03
<i>Total</i>	06	06

The period-wise percentage of the mace-head like objects including the surface finds is showing below:

Period II A – 20%, Period III – 20%, Period IV – 20% Surface- 40%



Stratigraphically, the illustration No.1 has been unearthed from Period IIA, No. 2 belongs to Period III; No. 3 retrieved from the Period IV and Nos. 4 and 5 have been collected from the Surface.

No. 1: Disc type, only one half is intact, apparently circular in form. Surfaces are partially smooth and non-glossy. Its working edge has been rounded, chipped and bruised. Inner diameter of the perforation is about 18 mm and the outer one is 30 mm at one face and 26 mm at the other. The total diameter of the tool is 98 mm and maximum thickness is 15 mm. Period II A

No. 2: Partly broken, remained the largest tool in the collection, almost elliptical in form. Surfaces are rather rough and non-glossy. No workmanship is in evidence for the working edge, which is rounded. Inner diameter of the hourglass like perforation, rather roughly done, is 10 mm only, and the outer one at one face is 50 mm and 36 mm at the other. The inner diameter is unsuitable for effective hafting. Diameter of the tool is 156 mm and thickness being 30 mm. Minor segment of the working edge is battered. Period III

No. 3: Half broken. Partially intact portion is rounded rectangular in form. Surfaces are rather rough and non-glossy. Working edge seems to have been rounded. Inner diameter of the perforation is 13 mm, and the outer on at one face is 38 mm and 35 mm at the other. Diameter of the tool is 105 mm and thickness 30 mm. Period IV

No. 4:

Broken, approximately 2/3 portion is intact. It is approximately circular in outline and oblate in cross section. Surfaces are ribbed and non-glossy. Traces of ribbing in the hourglass like perforation is also evident, which has an inner diameter of about 28 mm, and the outer one at one face is 38 mm and 42 mm at the other. Diameter of the tool is 106 mm and thickness being 59 mm. Unstratified

No. 5: The object is greatly battered. Since the edges are broken, its form and cross section are not clear. Hourglass like perforation is too small (6mm) to accommodate any effective hafting. Its surfaces are rough and non-glossy. It is quite likely that the object may have been discarded in course of fabrication. Unstratified

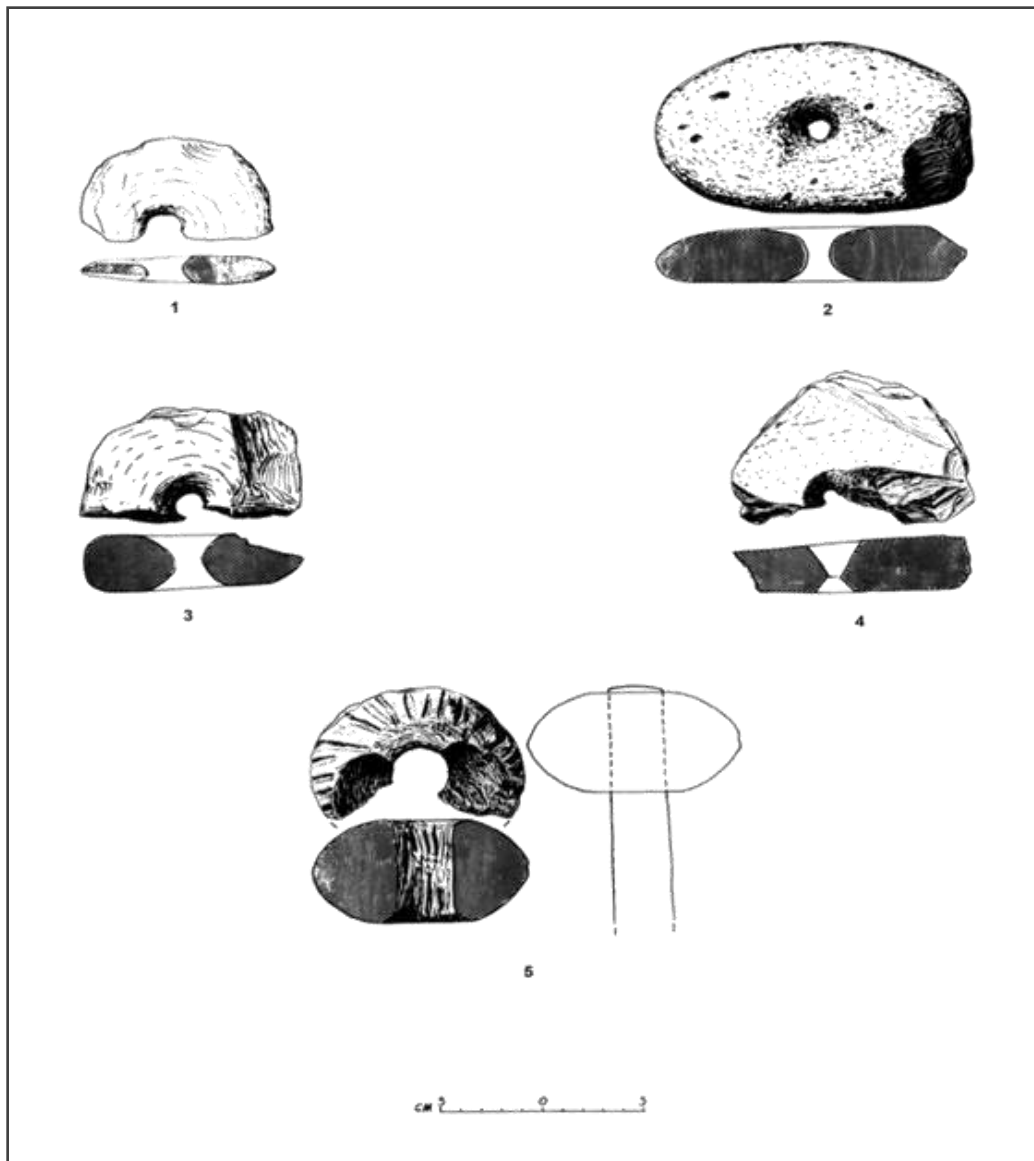


Fig. 4.2.3 Mace Head Like

C. DOUBLE-EDGED PICKS:

Excavation at Burzahom has brought to light fragments of four double-edged picks, manufactured on Phyllite rock, which has been illustrated below (Fig. 4.2.4). Out of the four specimens, one (illustration No. 2) was in the process of fabrication and may have broken during the process. This particular tool is roughly dressed, working edge being in an unfinished state, tending to be convex while perforation is clearly worked from both the sides. The remaining tools are distinctively shaped and nicely ground, but broken near the centre, perforation being partially intact.

In the illustration, intact portions are triangular in form, surfaces of No. 1 and its variants are smooth; faces being flat in Nos. 1a and convex in No. 1, sides are faceted. No. 1 is glossy, but its variants are slightly glossy. The working edge is straight in No. 1 and slightly convex in its variants, and chipped due to use in Nos. 1a and 1b.

Stratigraphically, No. 1 and its variants have been recovered from Period IIA; No. 2 was collected from the surface. A brief description of the available specimens runs as follows:

No. 1: Broken half of a double-edged pick. Workmanship is good. Facetted sides taper off from centre towards both ends to form working edges, only one of which is intact. It is marginally beveled, however, blunt and rounded, apparently due to wear and tear. In section almost barrel shaped. Perforation about 20 mm in diameter is nearly circular and nicely finished. Surfaces are smooth and highly glossy. Extant portion measures 115 mm x 60 mm x 20 mm. Period II A

No. 1a: A smaller variant of the preceding, broken, only portion of one pick with traces of central perforation intact. Its surfaces are smooth, slightly glossy, and flat except for minor scars and few chips off. Facetted sides, extant working edge is chipped and rounded due to use. It is convexo-pentagonal in section. Extant portion measures 75 mm x 47 mm x 17 mm.

No. 1b: Broken half of a double-edged pick. Surfaces are slightly glossy, smooth, and flat except for minor scratching and encrustations. Facetted sides, working edge is relatively broad, somewhat rounded and chipped off due to use. In section rounded rectangular. Extant portion measures 100 mm x 60 mm x 11 mm.

No. 2: Broken half of an unfinished double-edged pick. Extant portion suggests that originally it was fashioned as a large sized tool, which was broken quite likely in course

of fabrication. Diameter of the perforation is 14 mm. The extant portion measures about 153 mm x 73 mm x 24 mm. Surface

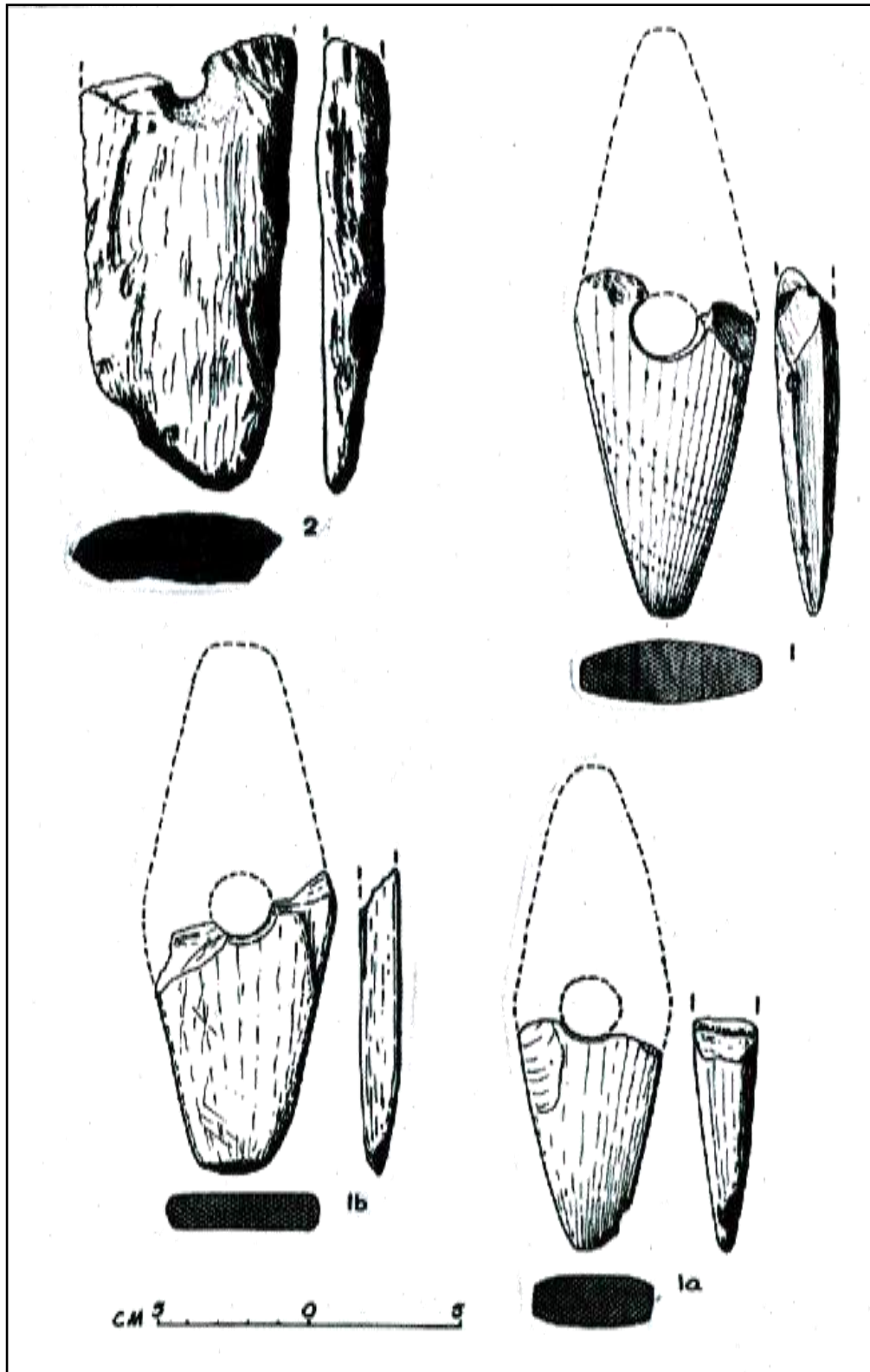


Fig. 4.2.4 Double-edged Picks

D. WEDGES

Altogether, fifty six (56) stone tools identified as wedges, have been uncovered from the various levels of excavations at Burzahom. From the Period I, 4 artifacts have been found, whereas Period IIA & IIB yielded 26 tools, Period III revealed 13 specimens, Period IV unfolded 7 tools and 6 specimens have been gathered from the un-stratified level or surface.

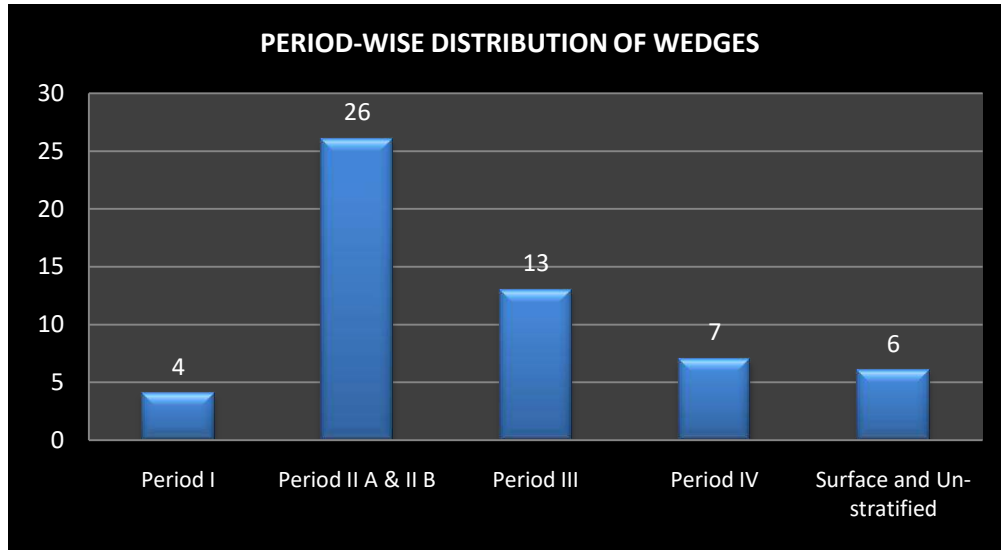
Out of 56 specimens, 11 have been chosen for illustrations (Fig. 4.2.5). Among the illustrated tools 6 are large sized and 5 are medium sized.

In appearance, the wedges look like axes in form and size with the exception of illustrated specimens Nos. 3 and 9. However, their thick rounded bodies, straight sides except for a minor taper in a few cases, convex or straight working edges usually blunt and thick, nicked and chipped due to use, distinguish them from the axes. Besides, the beveling is symmetrical and well defined in few cases, and poorly defined though generally symmetrical in few others, and just marginal in very few cases. Mostly the beveled portion is glossy, very few specimens are fully glossy, and some are partially glossy. Their forms are generally quadrilateral or trapezoidal; cross sections are rounded rectangular, square, oblong, elliptical or circular. Laterally, these are faceted or rounded. The butts are also mostly rounded, hammered and worn, indicating that undoubtedly these were intermediary heavy duty tools. However, their workmanship is pretty good in relation to pecking and grinding.

These wedges measure between 80 mm and 170 mm in length, their width varies from 35 mm to 65 mm and thickness between 31 mm and 48 mm. The largest one is No. 7, measuring about 170 mm x 57 mm x 48 mm while the smallest specimen No. 9, measures 80 mm x 35 mm x 32 mm respectively in length, width and thickness.

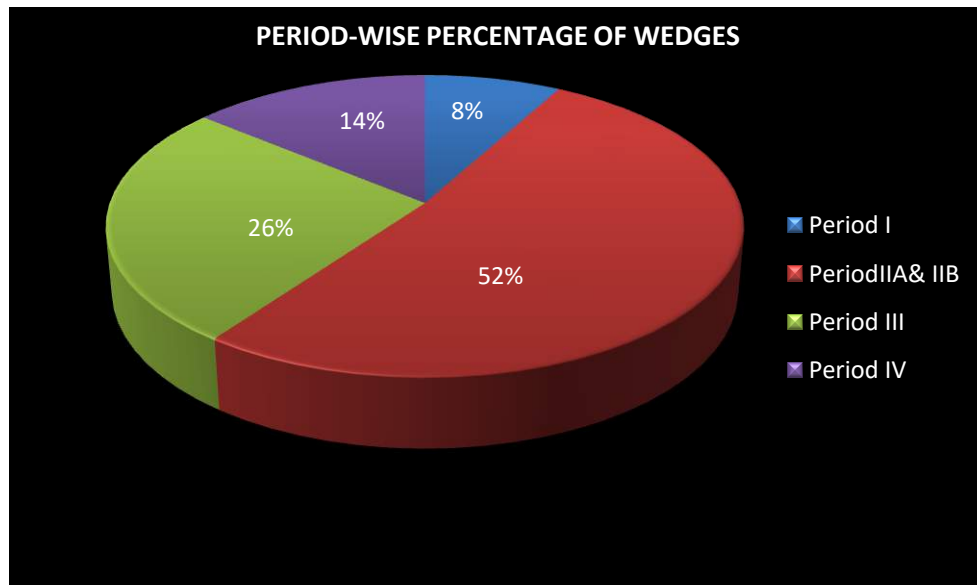
Amongst the illustrated specimens, No.1 has been found from Period I, No. 2 from an early level of Period IIA, Nos. 3 - 6 are from the upper levels of Period II B, No. 7 and 8 are from Period III, Nos. 9 - 11 are gathered from the surface and un-stratified level.

The Period-wise break-up of their occurrences is as follows:



Excluding specimens from the Surface and Un-stratified levels, the period-wise percentage works out as follows:

Period I - 8%, Period IIA & IIB - 52%, Period III - 26%, Period IV - 14%.



No. 1: Rounded hammered chipped butt. Smooth surfaces except for minor encrustations. Laterally rounded, somewhat rounded in cross section, quadrilateral in form, poorly defined symmetrical bevelling for the working edge, which is broken but intact corner rounded, blunt, chipped and nicked. The bevelled portion is partially glossy but chipped on both surfaces. Measurement: 138 mm x 53 mm x 38 mm. Period I

No. 2: Rounded hammered, chipped butt. Rough surfaces with few chips off, especially on one face near the working end. Laterally the tool is rounded having a thick body, almost trapezoidal in form, irregularly circular in cross section. Partially well defined asymmetrical bevelling for the working edge, which is rounded near the corners, mostly chipped making a wavy edge, due to use. The bevelled portion on one face is heavily chipped, and glossy on the other. Measurement: 130 mm x 61 mm x 48 mm. Period II A

No. 3: Round hammered butt. Facetted sides, smooth surfaces, nicely pecked and ground. Straight sided, rounded rectangular in cross section. Well defined symmetrical bevelling for the convex, thick working edge, which is blunt and chipped due to use. Surfaces are glossy all over below mid-point, and partially glossy on one face above mid-point excluding the butt. Measurement: 92 mm x 42 mm x 31 mm. Period II B

No. 4: Somewhat rounded butt, relatively broad rounded operative part. Smooth surfaces except for minor encrustations, rounded lateral sides, approaching to quadrilateral in form, oblong in cross section. Poorly defined, rounded and smooth bevelling for the working edge, which is blunt, partly broken and chipped. Surfaces are glossy all over excluding the butt end. Measurement: 120 mm x 65 mm x 50 mm.

No.5: Rounded hammered butt. Partially smooth surfaces, laterally rounded body, elliptical in cross section. Poorly defined symmetrical bevelling for the working edge, which is rounded, blunt, chipped and nicked. Bevelled portion is partially glossy. Measurement: 108 mm x 55 mm x 30 mm. Period II B

No.6: Round hammered butt. Smooth surfaces except for minor encrustations. Laterally rounded, almost rounded rectangular in cross section and nearly trapezoidal in outline. Not so well defined bevelling except for marginal slope near the working edge, which is rounded, thick and broad. Patches of Glossiness found towards the operative part. Measurement: 140 mm x 58 mm x 41 mm. Period II B

No. 7: Partially smooth surfaces with some encrustations. Nearly straight, facetted to rounded sides, trapezoidal in form, roughly rounded square in cross section. Poorly defined asymmetrical bevelling for the working edge, which is straight and oblique,

overall blunt and chipped. Surfaces are partially glossy. Measurement: 170 mm x 57 mm x 48 mm. Period III

No.8: Broad, rounded rectangular butt. Smooth and flat surfaces except for few chips off, laterally rounded, quadrilateral in form, rounded rectangular in cross section. Poorly defined asymmetrical bevelling for the working edge, which is convex and blunt. The bevelled portion is faintly glossy. Measurement: 122 mm x 64 mm x 48 mm. Period III

No. 9: Somewhat rounded flattish hammered butt. Partially smooth surfaces, laterally rounded, but chipped, quadrilateral in form and irregular in cross section. Poorly defined symmetrical bevelling for the working edge, which is convex and blunt. Surfaces are rough but glossy on the bevelled portion. Measurement: 80 mm x 35 mm x 32 mm. Surface

No.10: Roughly rounded and hammered butt, slightly chipped. Surfaces smooth, laterally rounded, thick body, quadrilateral in form, irregular but approaching elliptical in cross section. Well defined symmetrical bevelling for the working edge, which is straight, nicked and slightly chipped. The bevelled portion is glossy. Measurement: 148 mm x 55 mm x 44 mm. Surface

No.11: Rounded thick hammered butt. Partially smooth surfaces except for a scar. Laterally irregular round and wavy profile, quadrilateral in form, section irregularly rounded with concavity on one side. Poorly defined marginal bevelling for the working edge, which is fairly thick and blunt. Surfaces are slightly glossy all over. Measurement: 138 mm x 64 mm x 48 mm. Surface

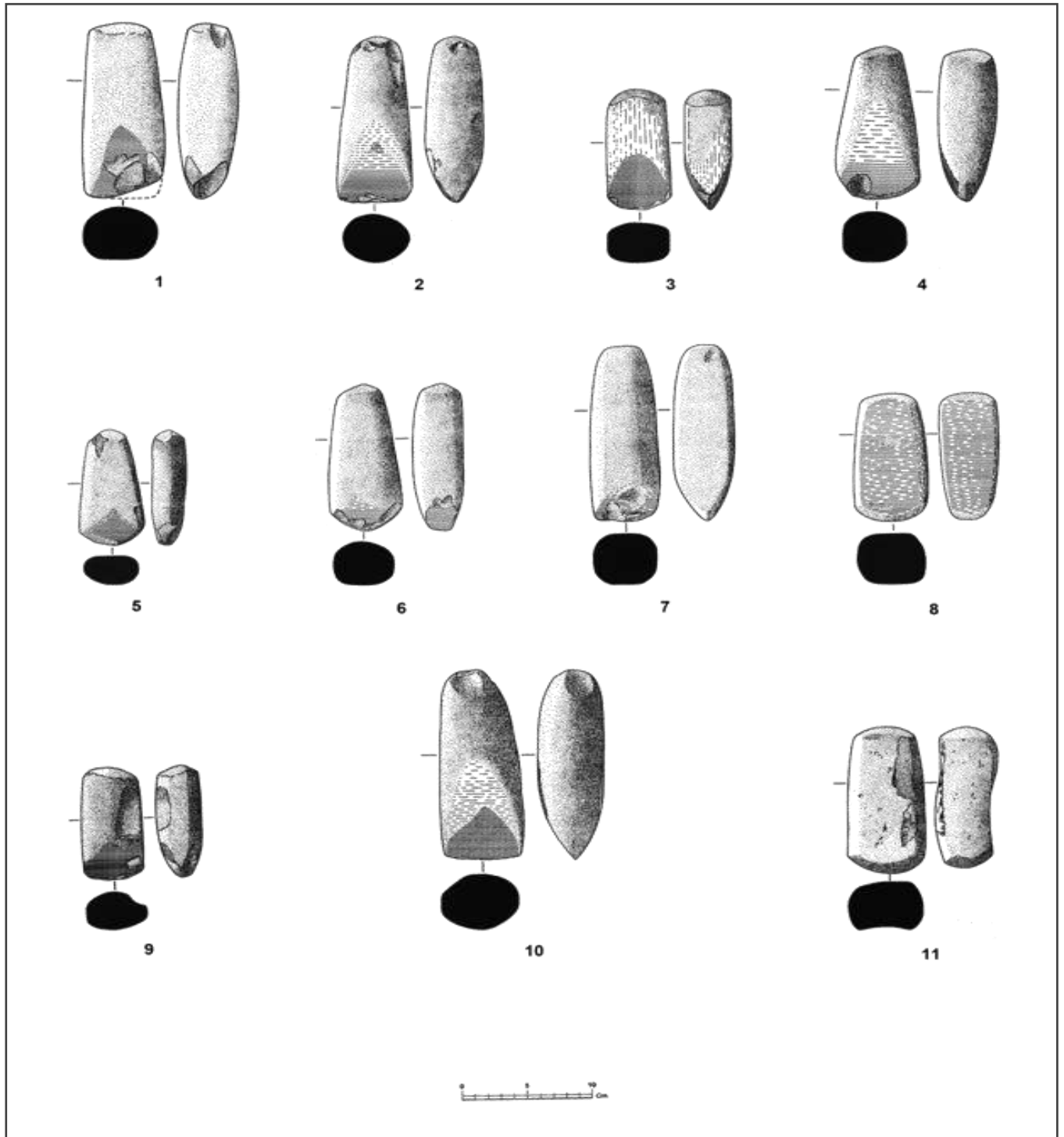


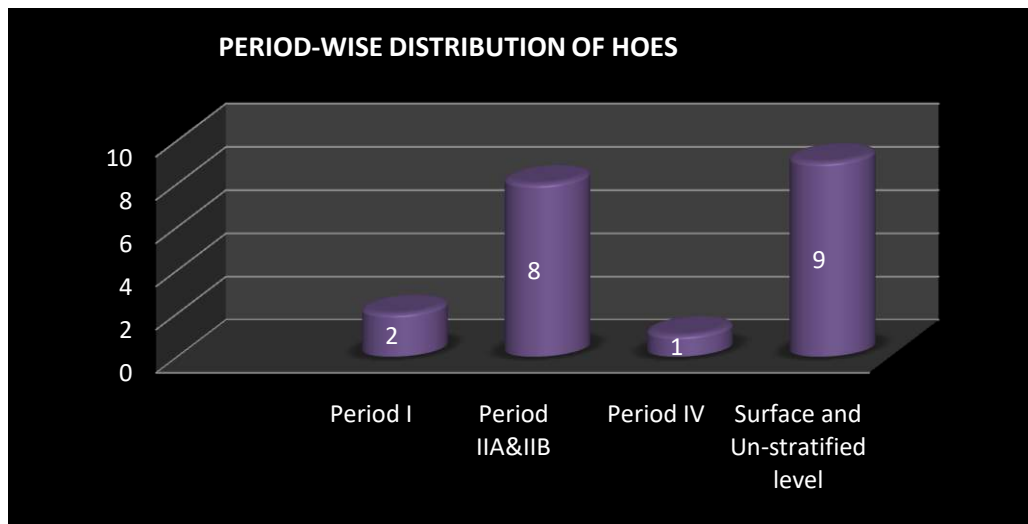
Fig. 4.2.5 Wedges

E. HOES

The excavations have unearthed twenty (20) large sized hoes, out of which two are double-edged. Among these heavy duty tools, seven specimens have preferred for illustrations (Fig. 4.2.6 nos. 1 to 4 and Fig. 4.2.7 nos. 5 to 7). The largest illustrated specimen No. 7, measures 235 mm in length, 60 mm in width and 36 mm in thickness. Possibly such large sized hoes were used without a haft in heavy-duty, such as digging of the dwelling pits. In fact, the cutting marks effected by such tools have been observed in a few dwelling pits. It has already been stated that for hollow out such square, rectangular and oval shaped dwelling pits through the firm loessic earth categorically involved heavy duty stone tools like celts, sharp picks, hoes and the digging strokes of which recognized on the walls of those pits elucidate the fact.

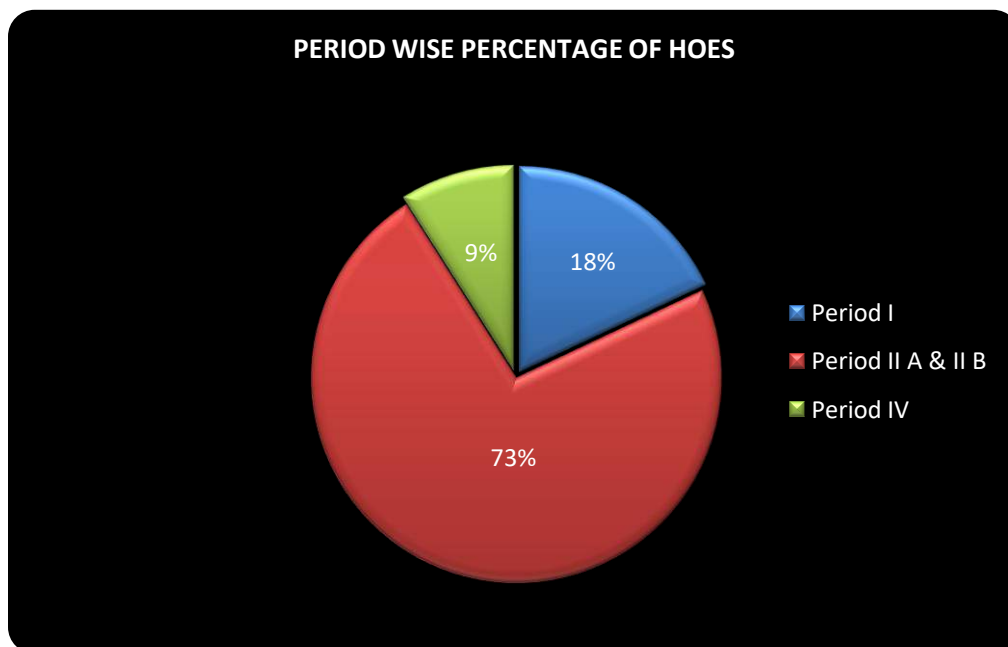
The dimensions of the illustrated hoes vary from 133 mm to 235 mm in length, 45 mm to 63 mm in width, and from 18 mm to 44 mm in thickness. The butts are generally rounded and hammered, in some examples roughly and in others properly. Bodies are thick and rounded except for the illustrated specimen No. 1, which has nearly flat faces and the body is relatively thinner. The sections are generally flattened oval or elliptical. The material is trap rock, greenish in colour. With the exception of Nos. 4 and 6, working edges are straight, chipped and blunted due to use; however, working edges are relatively sharp, less chipped, and convex in illustration Nos. 2, 4, and 5. Wear striations clearly indicate some sort of vertical movement in most of the cases, some examples show deep and vertical striations near the working edges on both the faces. Wear striations in case of illustration No. 2 are vertical at both ends on the convex face, whereas on the other face, lines can be seen near one end only. In case of No. 5, striations follow a diagonal pattern at one end suggesting its use as an axe also. Nos. 2 and 5 are glossy all over except for scratched and scarred portions. The other types are partially glossy.

Period-wise distribution of Hoes is as follows:



Excluding specimens from Un-stratified levels and surface, the period-wise distribution in percentage works out as follows:

Period I - 18%, Period II A & II B - 73%, Period IV - 9 %



From the stratigraphical point of view illustrated specimens Nos. 1 and 2 have exposed from Period I, Nos. 3, 4 and 5 from Period IIA, No. 6 from Period IIB and no. 7 from Period IV.

No. 1: Complete. Butt irregularly rounded, one face scarred and chipped near butt, the other face partly smooth. Roughly pecked surfaces, laterally rounded, approaching flattened oval in section, asymmetrical bevelling for the working edge, which is nearly straight and heavily nicked due to use. Faces along with bevelled portions are non-glossy; however, lateral margins are partially glossy. Measurement: 180 mm x 58 mm x 26 mm. Period I

No. 2: Greenish coloured double edged hoe, partially concavo-convex profile, surfaces are smooth, except for chips off and scars on one face. Laterally rounded except for few chips off, somehow close to flattened oval in section. Well defined asymmetrical bevelling for both the working edges, which are sharp and convex. Surfaces are even and highly glossy. A reddish tinge has been observed on the encrustations in the scarred portions, which indicates contact perhaps with red ochre colour. Measurement: 133 mm x 45 mm x 18 mm. Period I

No. 3: Round hammered butt with few chips off. Smooth surfaces except for a few scars. One face has few deep scars. It has a Plano-convex profile, thick body, laterally evenly rounded, almost circular in section. Well defined asymmetrical bevelling for the working edge which is nearly straight and chipped. Surfaces are glossy near the working edge. Measurement: 168 mm x 55 mm x 44 mm. Period II A

No. 4: Round hammered butt with a chip off on one lateral margin. Smooth surfaces except for a few deep scars. Thick body, faces have a Plano-convex profile, laterally rounded, in section elliptical. Well defined asymmetrical bevelling for the working edge which is sharp and convex, and nicked due to use. The bevelled portion is glossy. Measurement: 190 mm x 63 mm x 44 mm. Period II A

No. 5: Double-edged shoe-last like profile, one face is smooth except for scarred portions, the other is slightly ridged along the vertical axis and part of this face is smooth. Laterally rounded, section is irregular. Surfaces are glossy. Both the working edges are convex, and slightly chipped, one end of the tool is comparatively narrow and large. Measurement: 188 mm x 45 mm x 26 mm. Period II A

This tool was examined under a microscope. Micro-wear study of its wider working edge shows that striations follow a diagonal pattern on both the faces, indicating a curved trajectory during use. Therefore, it may have been used as an axe as well. Wear

striations on the other edge are not distinct. This may be due to reshaping and regrinding.

No. 6: Irregularly rounded butt with few chips off. Surfaces are partially smooth, pitted and scarred at a few points. Nearly straight sided, thick body laterally rounded. Its section is irregular, but approaching elliptical. Poorly defined asymmetrical bevelling for the working edge, which is straight but rounded near the corners, chipped due to use and thus blunted. Surfaces are partially glossy. Measurement: 198 mm x 60 mm x 40 mm. Period II B

No. 7: Roughly rounded and slightly chipped butt. This is the largest hoe unearthed from Burzahom excavation. One face is smooth, bevelled portion is chipped off perhaps due to use. The other face is encrusted. Lateral sides are rounded to faceted, cross-section approaching oval shape. Poorly defined asymmetrical bevelling for the working edge, which is straight and blunt. Surfaces are glossy below mid-point, excluding lateral margins. Measurement: 235 mm x 60 mm x 36 mm.

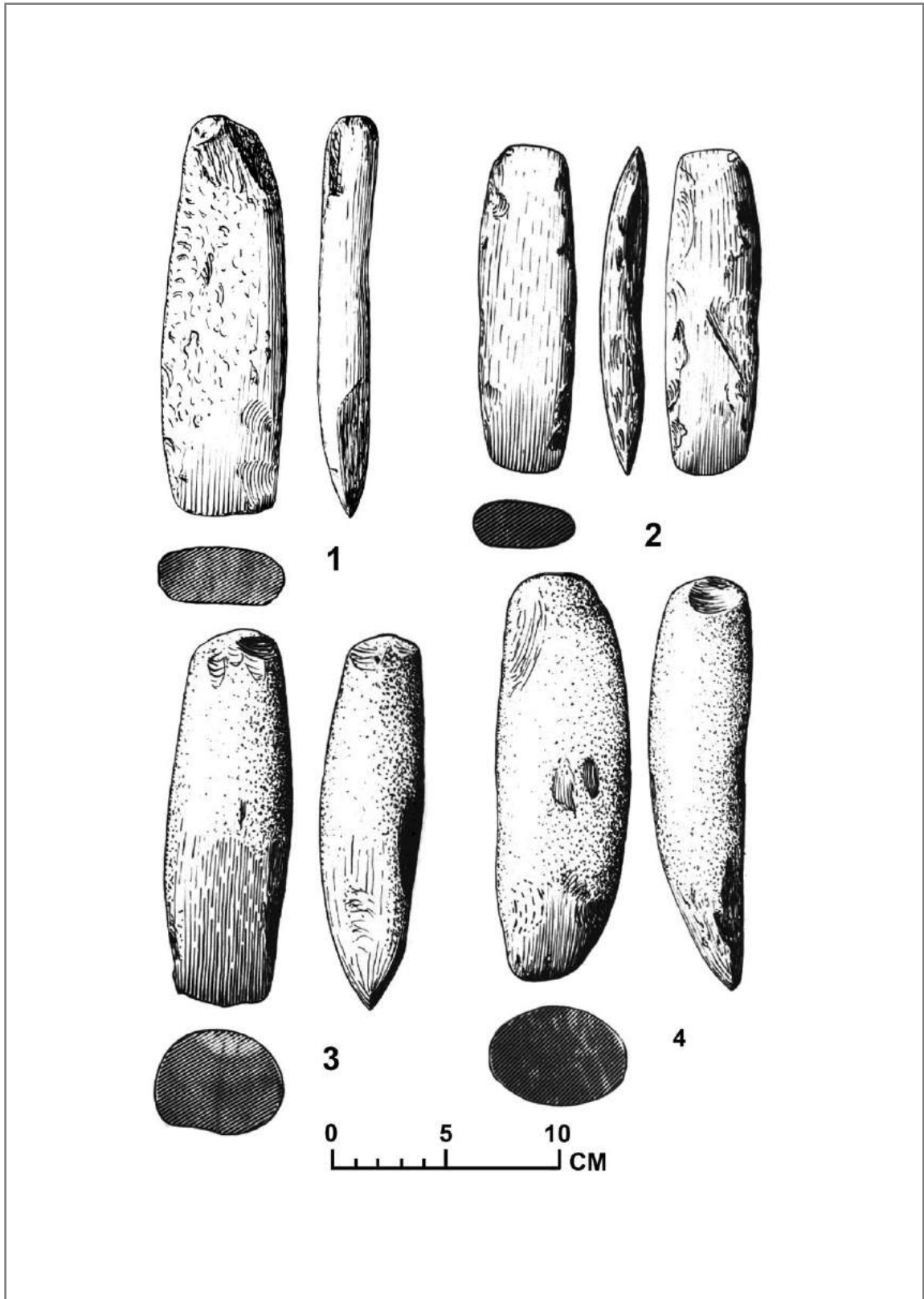


Fig. 4.2.6 Hoes

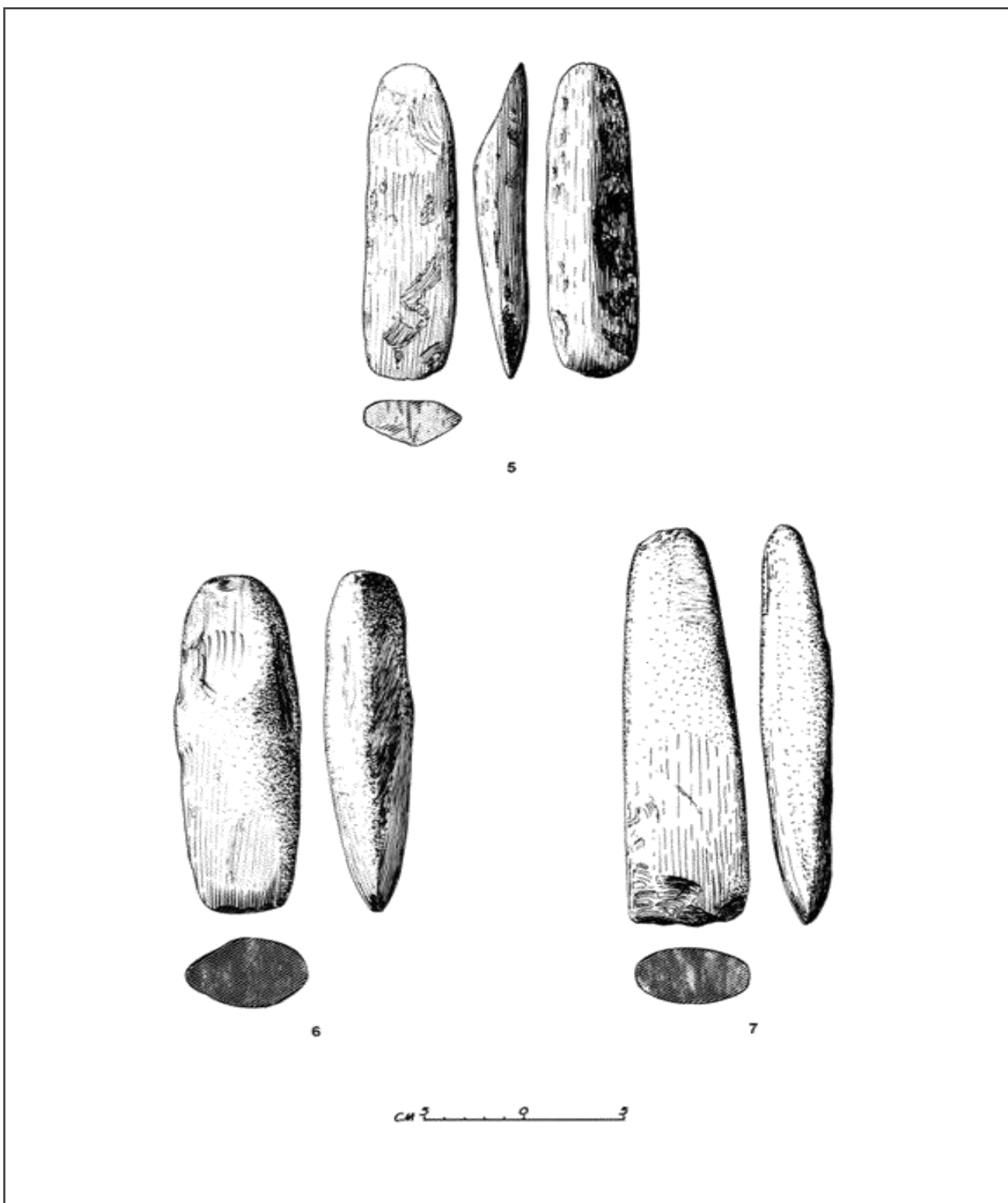


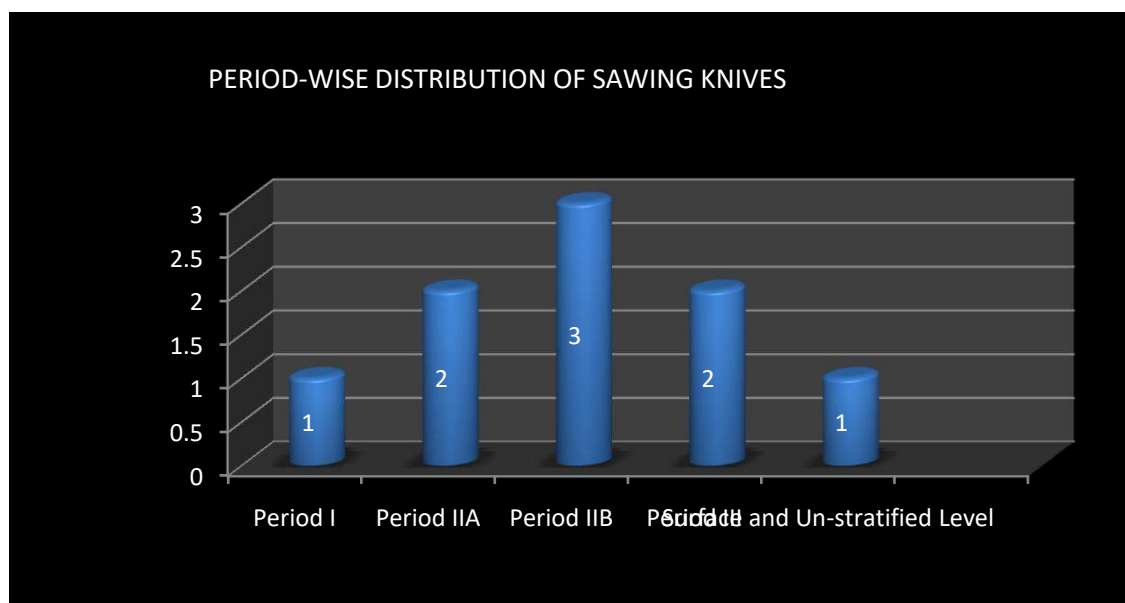
Fig. 4.2.7 Hoes

F. SAWING KNIVES

Nine numbers (9) of sawing knives manufactured on flake have been found during the excavations at Burzahom (Fig. 4.2.8). These specimens, , were made on the Panjal Trap rock and have duly been illustrated (nos. 1 to 7).

These tools do not conform to any standard form, for the flakes used in fashioning them have been obtained by random flaking, and then subjected to secondary grinding (illustration Nos. 1, 8 and 9 appear to have been struck off the prepared cores). Workmanship is confined to the working edges, mostly effected by minor retouching and grinding, resulting in the production of invariably sharp and mostly glossy edges. Moreover, Nos. 1, 3, 8, and 9 show double-edges, both are functional. In No. 6 one edge is sharp, while the other is serrated, and slightly blunted, perhaps due to use. Nos. 2, 4, 5, and 7 are single edged; there is no evidence of any workmanship on the other edge, which seems to be non-functional. In Nos. 2, 3, 6, 8, and 9 surfaces are fully or partially glossy. These sharp edged flake tools seem to have been used for fabricating bone implements, such as harpoons, points, scrapers, etc. This suggestion finds support in the wear striations on their working edge. Thus, wear striations on Nos. 2, 5, and 8 have been observed under a microscope, which shows that these run more or less parallel to the working edge. It is, therefore, presumed that these have been used like a saw, effective in sawing bone tools.

From stratigraphical point of view No. 1 has been recovered from Period I, Nos. 2 and 3 are from Period IIA, Nos. 4, 5, and 6 from Period IIB, Nos. 7 and 8 from Period III, and No. 9 from the surface.



No. 1: Somewhat conical in outline, triangular in cross section with a single working edge. Surfaces are partially smooth. Working edge is sharp, convex and non-glossy. Measurement: 102 mm x 42 mm x 27 mm. Period I

No. 2: Irregular in form, retaining single working edge. Surfaces are scarred, bear encrustations, and have a reddish tinge above the working edge. This may be due to active contact with red ochre. Plano-convex in cross- section nicely ground and marginally bevelled for the working edge, which is sharp and slightly convex. Towards the working edge it is fully glossy and partially so up to mid-point, non-functional edge is relatively thick. Measurement: 108 mm x 38 mm x 11 mm. Period II A

No. 3: Irregular in form, Plano-convex in cross section, double-edged. Surfaces are partially smooth. Both working edges are sharp, nicely ground and glossy. Measurement: 117 mm x 41 mm x 13 mm. Period II A

No. 4: The tool is almost Plano-convex in form and cross section with single working edge. Surfaces are smooth except for minor scars. The working edge is sharp, straight, and slightly nicked. Grinding is in evidence for the working edge on one face. Measurement: 115 mm x 55 mm x 20 mm. Period II B

No. 5: Form and cross section irregular. Surfaces are partly smooth. Working edge is sharp, straight, nicely ground, and partially glossy. Measurement: 122mm x 46mm x 27mm. Period II B

No. 6: This is the thinnest and the smallest sawing double-edge tool in the total assortment. Roughly triangular in form, flattened lenticular in cross section, the tool shows partially smooth surfaces. There is reddish tinge on one face only, perhaps due to active contact with red ochre. One of the working edges is nearly straight, sharp, nicely ground and glossy; the other is serrated, rather blunt, perhaps due to use. Measurement: 78 mm x 27 x 5 mm. Period IIB.

No. 7: Triangular in form and cross section having single working edge. Surfaces are rather rough. The working edge is sharp, straight and glossy. Rest of the edges have been retained their cortex as such no workmanship is in evidence. Measurement: 106 mm x 83 mm x 20 mm. Period III

No. 8: Irregular in form and cross section, double-edged. Surfaces are partially smooth and glossy. Both working edges are sharp, nicely ground and glossy. Measurement: 83 mm x 39 mm x 9 mm. Period III

No. 9: Parallel-sided double-edged flake, apparently struck off a prepared core, hence a mid rib on one face, thus forming a triangular cross section. Both the working edges are sharp and straight, bearing evidence of grinding and glossiness on either face, seem to be functional. Measurement: 74 mm x 28 mm x 13 mm. Unstratified.

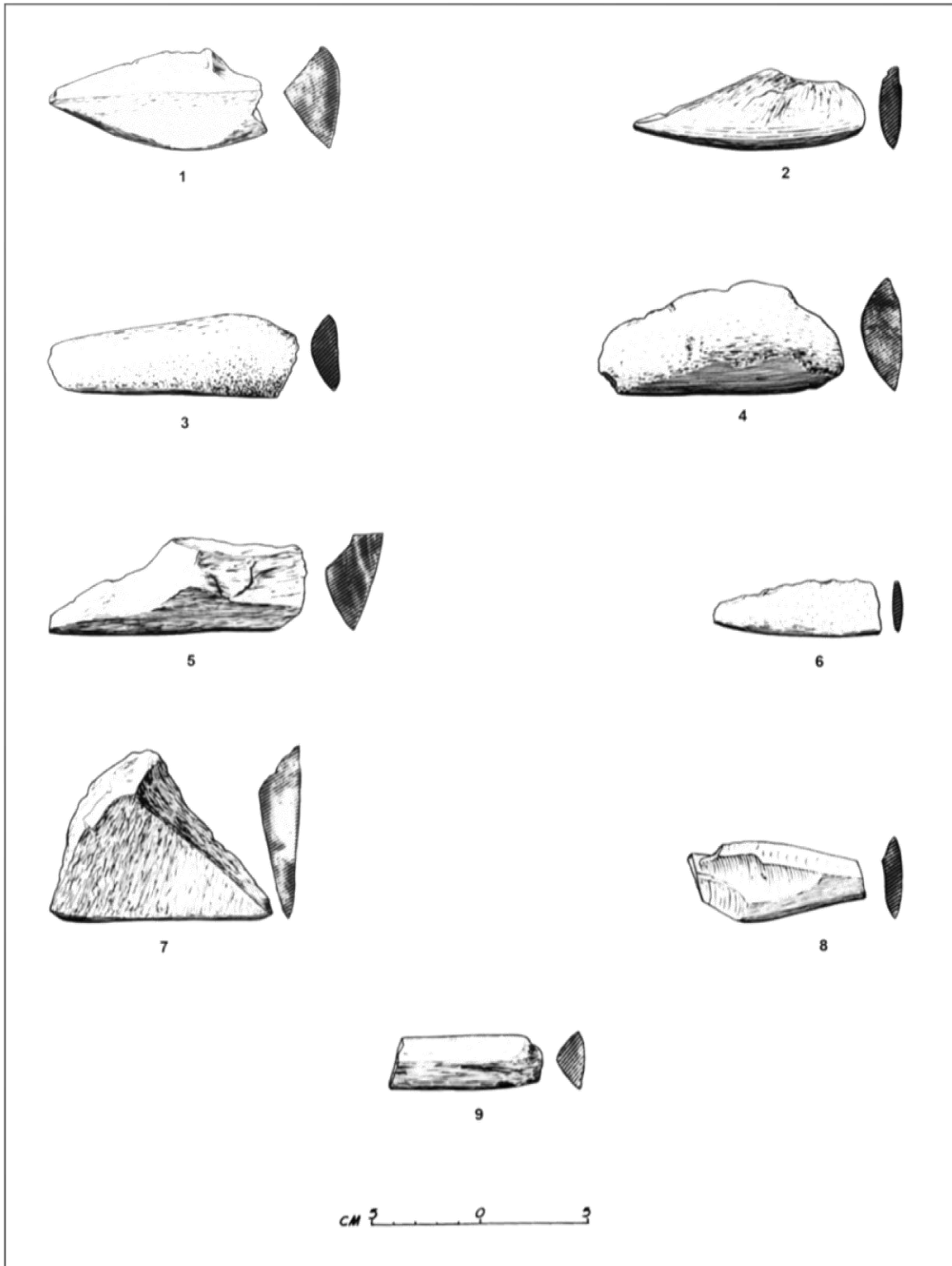


Fig. 4.2.8 Sawing Knife

G. CHISELS (CATEGORY I)

Burzahom has yielded a wide variety of stone chisels, amounting to fifty one (51) from various levels of excavations, classified under category 1. Period I has yielded 07 tools, Period IIA & IIB revealed 25 specimens, Period III exposed 08 artifacts, Period IV uncovered 04 chisels, and 07 specimens have been gleaned from the Un-stratified Levels and Surface. Out of the said chisels, sixteen specimens have been illustrated (Fig. 4.2.9 nos. 1 to 9 and Fig. 4.2.10 nos. 10 to 16).

These chisels, made on the Panjal Trap, are generally medium or large sized, however, a few small types are also available. The illustrated specimens Nos. 4, 11 and 16 are small sized, Nos. 1, 2, 3, 5, 7, 8 and 13 are medium sized, Nos. 6, 9, 10, 12, 14 and 15 are large sized. The small sized are less than 90 mm in length, the medium sized are over 90 mm and vary in length up to 120 mm. Large sized range between 130 mm and 180 mm in length. The largest chisel (No. 9) measures 180 mm x 43 mm x 38 mm and the smallest (No. 16) measures 84 mm x 24 mm x 18 mm.

Technologically, some examples show broader butts compared to blades, in a few cases, these are almost equal, only in Nos. 1, 5, 6 and 7 the butts are narrower than the blades. The smaller and medium types with narrow blades could have been used for delicate work only. The blades are generally sharp, thin, straight or straight with rounded corners, or convex. In few cases these are nicked and chipped due to use.

The blades have mostly been secured by well defined symmetrical beveling. Only in a few cases beveling, though well defined, is asymmetrical, for example, Nos. 8, 14, 12 and 15. In No. 16 there is no evidence of beveling, working edge has also been secured by chipping and marginal grinding, thus making it sharp.

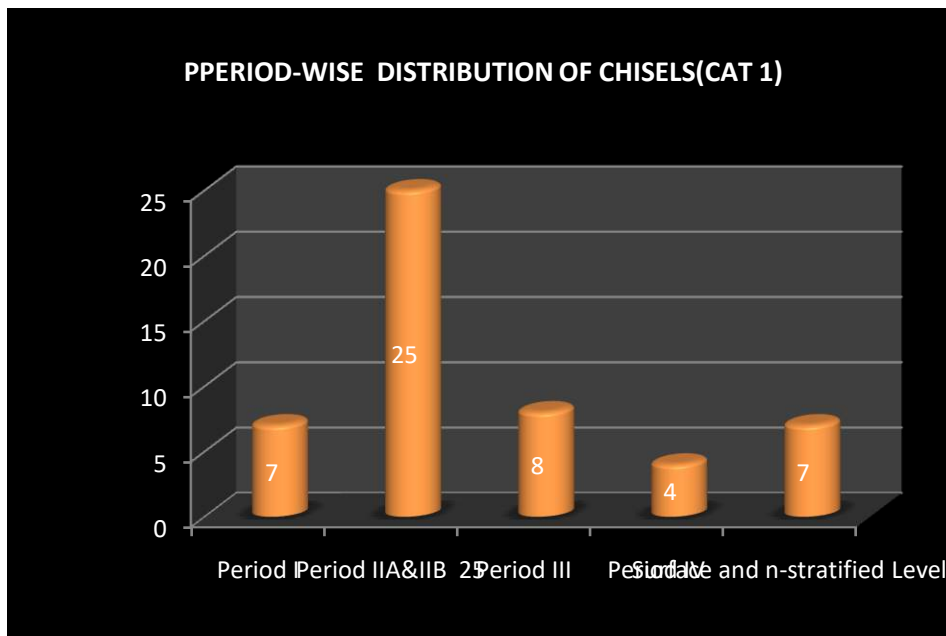
Butts are mostly fully rounded, irregularly or roughly rounded, square, or flat. In few cases these are roughly done and retained as such, or have partially broken or chipped during use, as in Nos. 6, 8, 12, 14 and 15. As usual with chisels, in a few cases, the butts are broken due to use. Most of these chisels seem to have been used without a haft.

In case of large sized chisels there is no marked workmanship in smoothing the surfaces. These have been roughly chipped, only marginally ground. But enough attention has been paid in fashioning the blades which are mostly glossy. In other cases, surfaces are smooth, flat or convex. Lateral margins are faceted or rounded. Tools are partially or fully glossy, beveled portion is invariably glossy.

These tools retain rectangular, rounded rectangular or square, elliptical and flattened oval, circular or oblong, trapezoidal sections. In the specimens Nos. 3, 4, 8, 14, 12 and 16, sections are irregular.

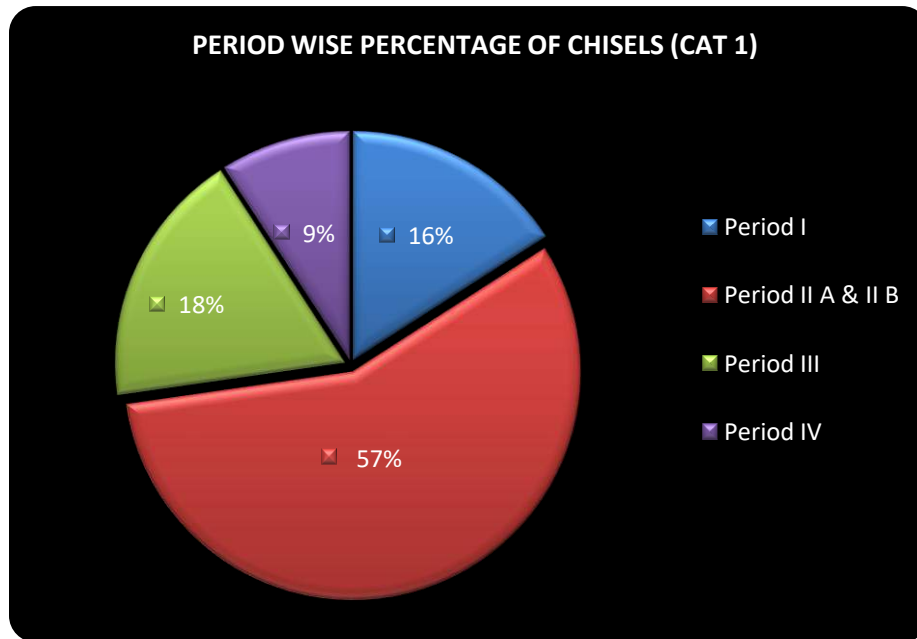
Among these said specimens No. 1 has been found from Period I, Nos. 2, 3, 4, 5 and 6 are from the Period IIA, Nos. 7, 8 and 9 are from Period IIB, Nos. 10, 11 and 12 are from Period III, and Nos. 13, 14, 15 and 16 are from Un-stratified Levels or Surface.

The period-wise distribution of stone chisels is as follows:



Excluding the specimens from Un-stratified levels/Surface the period-wise percentage works out as follows:-

Period I - 16%, Period II A & II B - 57%, Period III - 18%, Period IV - 9%.



No.1: Complete, broad, squarish butt, hammered chisel. Smooth surfaces with minor scars. Facetted sides, quadrilateral in form, rounded rectangular in section. Well defined symmetrical beveling for the working edge which is sharp and slightly oblique at one end. This tool could also have been used as an axe for light work. Faces are glossy below the mid-point and partially glossy above it. Measurement: 98 mm x 38 mm x 22 mm. Period I

No.2: Complete. Roughly rounded butt with a chip off, perhaps due to use. The tool retains smooth and nearly flat surfaces with minor encrustations. Facetted sides, rounded rectangular in section. Not so well defined beveling for the working edge, which is sharp, convex, and slightly nicked. Dimensions: 118 mm x 26 mm x 20 mm. Period II A

No.3: Complete, crudely fabricated. Lateral margins are roughly chipped except for the lower 1/3rd portion which remains smooth. Both the faces taper off below mid-point to form a working edge. Section is irregular. Well defined asymmetrical beveling near the lowest part of the working edge, which is sharp and straight, beveled portion is glossy. Measurement: 115 mm x 32 mm x 16 mm. Period II A

No.4: Incomplete, butt-end broken. Nice small chisel for delicate work. Surfaces are smooth with a few chips off. Both the faces are rounded, section irregular but almost

square. Well defined symmetrical beveling for the working edge, which is sharp and straight, nicked due to use. Only beveled portion is glossy. Measurement: 61 mm x 17 mm x 14 mm. Period II A

No. 5: Complete, narrow rounded butt, smooth and flat surfaces. Facetted sides, rounded square in section. Well defined symmetrical beveling for the working edge, which is sharp and straight but oblique at one end. Beveled portion is glossy, and the rest is partially glossy. Measurement: 106 mm x 30 mm x 24 mm. Period II A

No.6: Incomplete. Smooth surfaces, rounded faces, circular in section. Major portion of one face along with working edge is broken due to use. Surfaces are partially glossy. Measurement: 132 mm x 40 mm x 29 mm. Period II A

No.7: Complete, rounded narrow butt. Smooth surfaces. Both the faces are rounded, rounded rectangular in section. Well defined asymmetrical beveling for the working edge, which is markedly oblique at one end, and blunt, nicked and slightly chipped due to use. Surfaces are partially glossy. Measurement: 105 mm x 34 mm x 24 mm. Period II B

No.8: Complete, irregular butt. Smooth surfaces, tapering sides. Section is trapezoidal. Well defined asymmetrical beveling for the working edge, which is narrow, sharp and convex, beveled portion is glossy. Measurement: 118 mm x 38 mm x 18 mm. Period II B

No.9: Complete, large sized. Round hammered butt. Smooth surfaces with minor scars and encrustations, rounded faces. Section is irregular, but roughly/nearly round. Well defined symmetrical beveling for the working edge, which is broad, sharp and convex, nicked and chipped due to use. Surfaces are glossy all over below mid-point. Measurement: 180 mm x 43 mm x 38 mm. Period II B

No.10: Incomplete, partially smooth and flat surfaces with scars and encrustations, rounded rectangular in section with facetted sides. Poorly defined symmetrical beveling for the working edge, which is broken. Working edge has a seemingly narrow blade. Surfaces are partially glossy. Measurement: 150 mm x 31 mm x 26 mm. Period III

No.11: Complete, flat chipped butt, smooth and flat surfaces except for minor scars, nearly rectangular in form and section, facetted sides. Well defined symmetrical

beveling for the working edge, which is sharp and straight. Surfaces are fully glossy. Measurement: 89 mm x 28 mm x 14 mm. Period III

No.12: Complete, partially rounded butt, roughly chipped surfaces. Tapering sides, section irregular but nearly triangular. Well defined asymmetrical bevelling in the lowest portion for the working edge which is narrow, sharp and convex. Measurement: 152 mm x 35 mm x 36 mm. Period III

No.13: Complete, roughly rounded chipped butt, smooth surfaces, laterally rounded, smoothly tapering sides, elliptical in section. Well defined asymmetrical bevelling for the working edge, which is sharp, straight and slightly nicked, highly glossy below mid-point. Measurement: 105 mm x 39 mm x 14 mm. Unstratified

No.14: Almost complete. Roughly dressed butt, apparently broken either during fabrication or during use, and may have been retained as such. Surfaces roughly chipped, and partially smoothed. Tapering sides, rounded triangular section, and lower portion beveled on one face only for the working edge, which is narrow, sharp and straight. The other face is marginally beveled near the working edge, beveled portion is glossy. Measurement: 134 mm x 40 mm x 36 mm. Unstratified

No.15: Complete except for the upper part, roughly chipped surfaces. Lateral margins roughly rounded and glossy, irregular section, roughly flattened oval. Well defined asymmetrical beveling for the working edge, which is sharp and convex, and slightly nicked due to use, beveled portion is glossy. Measurement: 162 mm x 43 mm x 23 mm. Unstratified

No.16: Complete, roughly rounded and chipped butt. One of the faces is scarred and roughly done, the other one smooth with a chip off. Tapering sides, section irregular, beveling for the working edge is marginal, which is convex, blunt and nicked due to use. Measurement: 84 mm x 24 mm x 18 mm. Unstratified

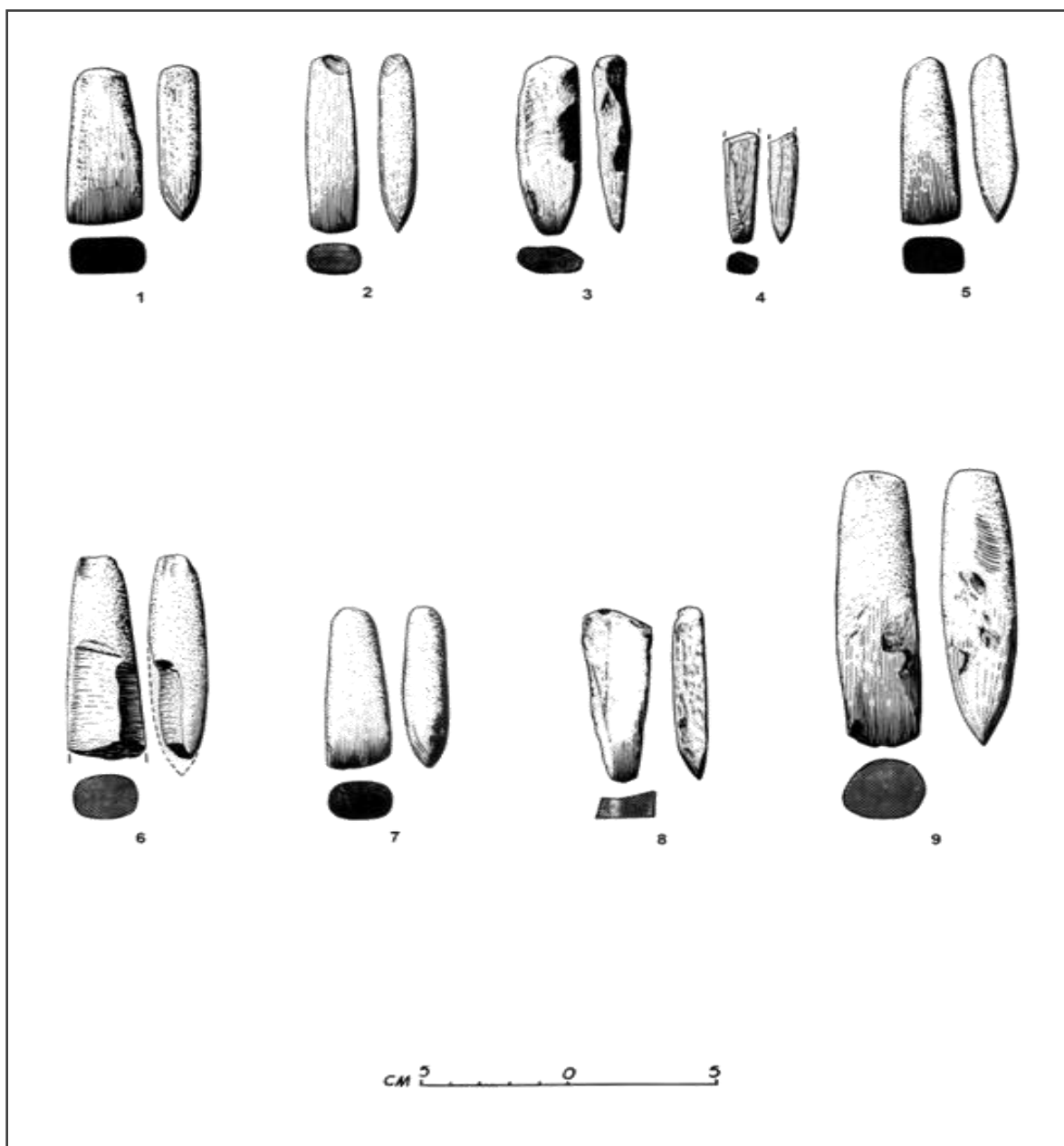


Fig. 4.2.9 Chisels (category I)

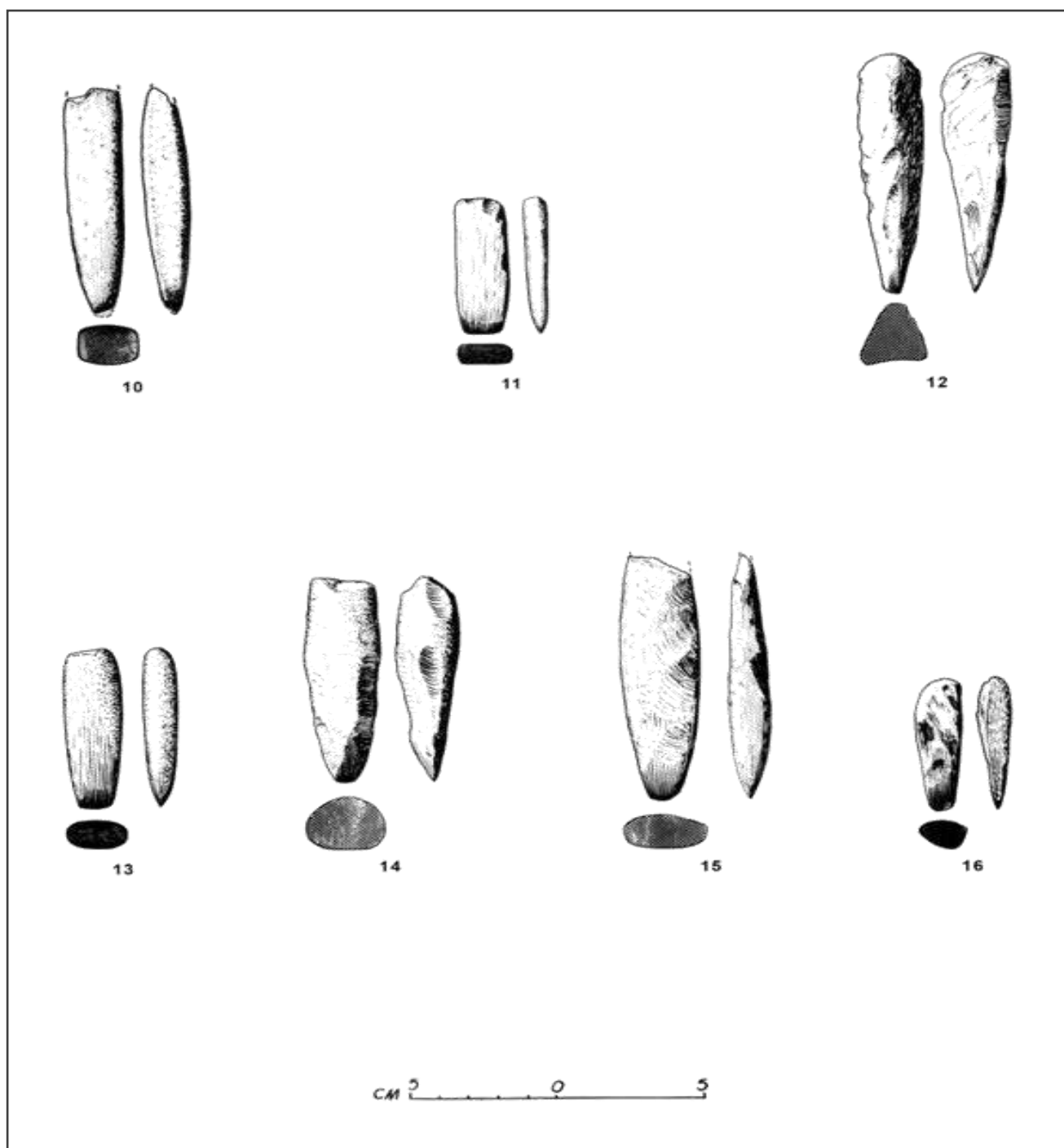


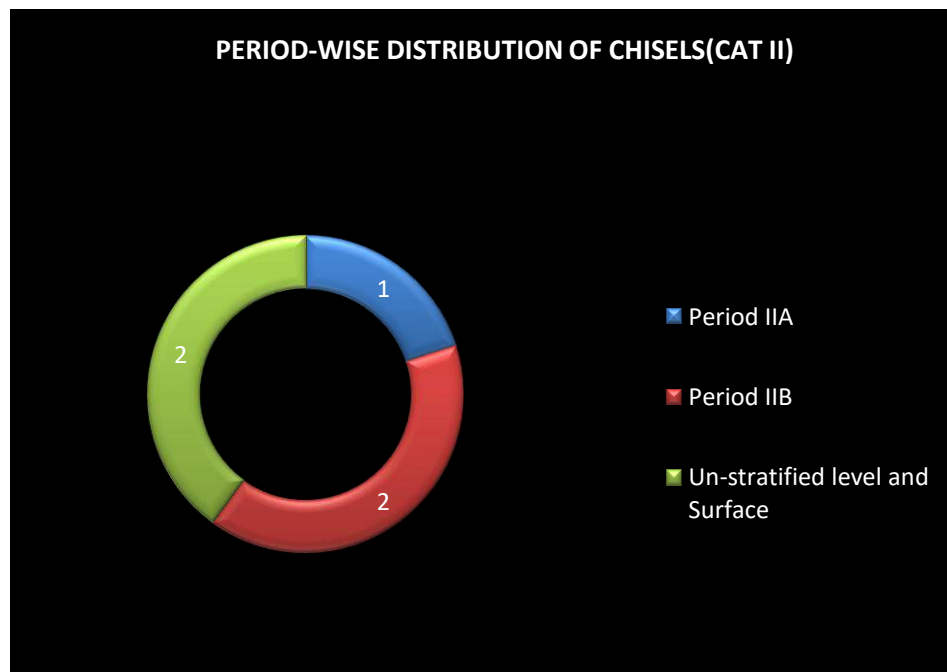
Fig. 4.2.10 Chisels (category I)

H. CHISELS (CATEGORY II)

Apart from the discussed chisels, the excavations have unfolded a few crude chisels, distinct from the other ones; have been placed in Category II. Here, five (5) specimens of this category have been described for better understanding (Fig. 4.2.11).

In this category (Category II) not enough workmanship is in evidence in fashioning butts, bodies and working edges. Their butt ends are thin, roughly chipped, as such could not have been used profitably without a haft. Faces are scarred in Nos. 1 and 2, and pitted and chipped in Nos. 3, 4 and 5. Lateral margins have also been formed rather roughly. The working edges of these tools are marginally beveled and not as sharp as chisels of Category I. Their sections are irregular. Surfaces are partially glossy in Nos. 3, 4, and 5, and non-glossy in Nos. 1 and 2. Working edge is straight in No. 2, somewhat straight but rounded near the corners in No. 1, convex in Nos. 3, and 4, and roundly oblique in No. 5.

From the stratigraphical point of view, except Periods IIA & IIB (Ceramic Neolithic), no other cultural periods have revealed this variety of tools, such as, No. 1 has been unearthed from Period IIA, Nos. 2 and 3 from Period II B, while Nos. 4 and 5 found from un-stratified levels and surface. The material used is Panjal Trap in Nos. 3, 4, and 5, and slate rock in Nos. 1 and 2.



Period-wise distribution of chisels is shown below:

No. 1: Light duty tool, roughly chipped flat butt. Surfaces and lateral margins are without gloss, and roughly done. Section is irregular. Marginally beveled for the working edge, which is sharp, straight but rounded near the corners. Measurement: 120 mm x 41 mm x 14 mm. Period II A

No. 2: Light duty tool, thin, flat chipped butt. Surfaces are scarred and roughly done. Quadrilateral in form, flattened oval in section, surfaces are not glossy. Marginal beveling for the working edge, which is straight and sharp but nicked due to use. Measurement: 85 mm x 28 mm x 12 mm. Period II B

No. 3: Thin chipped butt. Surfaces are smooth upto mid-point, pitted and roughly chipped below towards the working edge, roughly rounded faces. Surfaces are partially glossy, and elliptical in section. Poorly defined marginal symmetrical beveling for the working edge, which is narrow, convex and blunt. Measurement: 105 mm x 35 mm x 16 mm. Period II B

No. 4: Thin chipped butt, surfaces partly smooth partly scarred and pitted laterally rounded. Surfaces are partially glossy, roughly elliptical in section. Well defined symmetrical beveling for the working edge, which is relatively sharp, marked convex, and nicked due to use. Measurement: 110 mm x 38 mm x 18 mm. Unstratified.

No. 5: Thin, chipped, partially rounded butt. Faces are partially smooth, roughly rounded, just oval in section. Surfaces are partially glossy. Asymmetrical beveling for the working edge, which is roundly oblique, nicked and blunt. Measurement: 135 mm x 40 mm x 19 mm. Unstratified

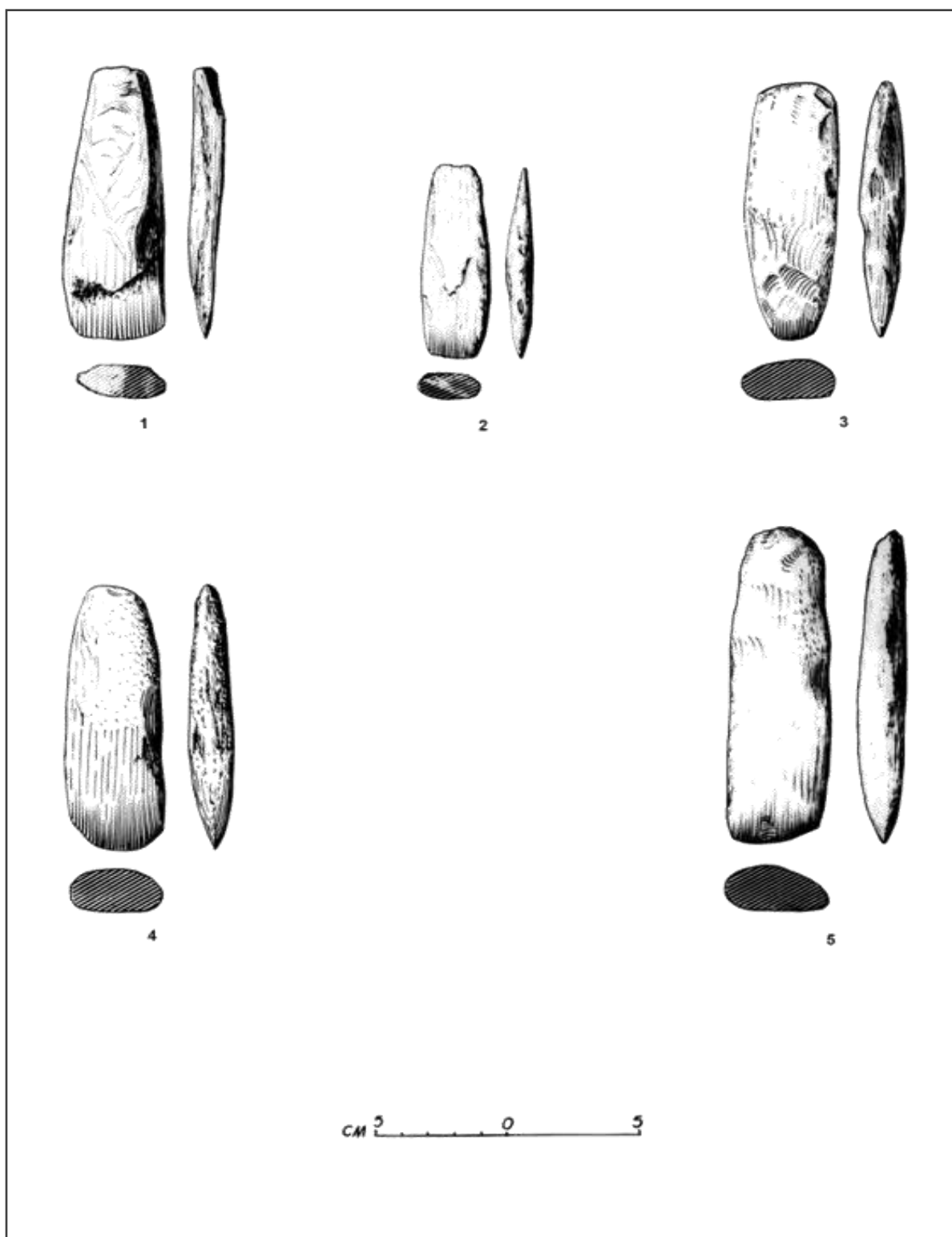


Fig. 4.2.11 Chisels (category II)

I. SCRAPERS

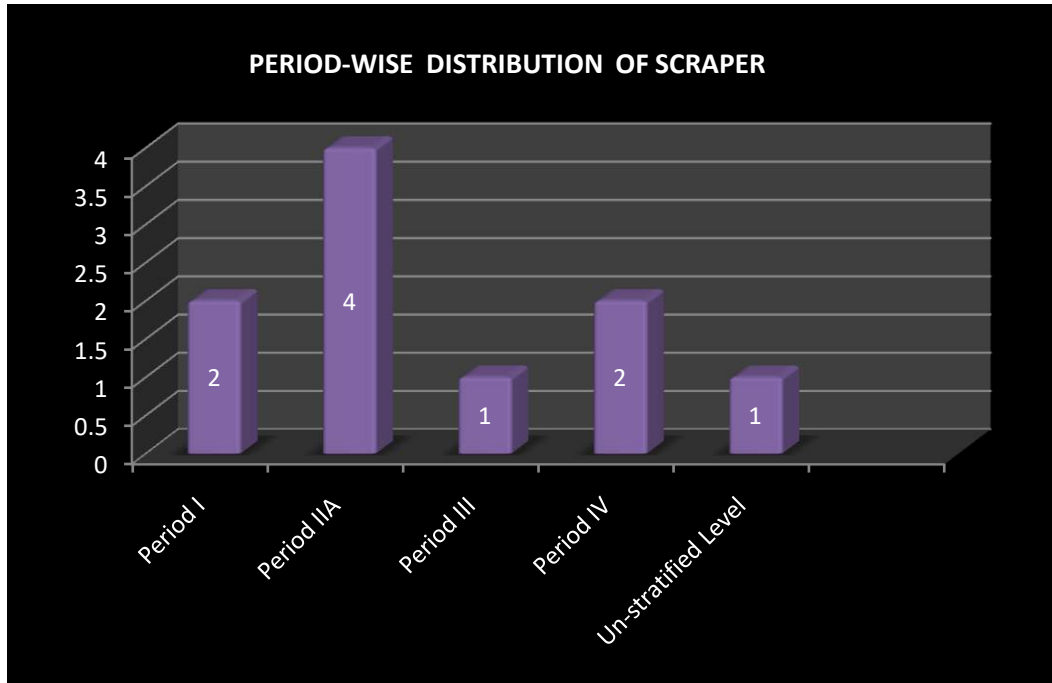
One more variety of chisel like tools, numbering ten (10), classified and illustrated (Fig. 4.2.12) here as scrapers, have also been uncovered from all the cultural levels of the site. These tools are made on slate rock, and could not have been used for heavy work, even if hafted. The material is softer, brittle, as such cannot withstand any kind of hammering. Formation of their butts, shafts and working edges clearly suggests that these are light duty tools, and may have been conveniently used as scrapers. The tools under reference have been examined under microscope; their working edges clearly indicate wear striations, which are short, thin and run parallel to the vertical axis. Obviously, their movement has been up and down. Workmanship in these tools is marginal as compared to their bone counterpart, which are rich in number and typology.

In case of stone scrapers, butts are thin, chipped or truncated, generally flat. Shafts are partially smooth with scars and scratches, or roughly chipped in a few cases. Beveling is well defined only in illustration Nos. 4 and 10. In others it is just marginal. The working edges are sharp or blunt, convex or straight, and nicked in few cases due to use. In most cases their sections are irregular, however, few examples with square, rectangular or almost parallelogrammatic sections are also found. Surfaces in three specimens are partially glossy, and non-glossy in the rest.

Their size varies in length from 64 mm to 145 mm, the smallest one is no. 7, and the largest one is no. 1. Their width varies from 18 mm to 32 mm, and thickness from 3 mm to 14 mm.

The illustrated specimen Nos. 1 and 2 have been found from Period I, Nos. 3, 4, 5 and 6 are from Period IIA, No. 7 from Period III, nos. 8 and 9 are from Period IV, and No. 10 is from an un-stratified.

Period-wise distribution of scraper is as follows:



No. 1: Complete, except for minor breakages, large sized, butt, to some extent broken, shaft has a partial break along the vertical axis, smooth and flat surfaces except for minor scars, rectangular in cross section. Sides taper off smoothly near the working edge. Marginal beveling for the working edge, which is sharp and convex. Surfaces are non-glossy. Measurement: 145 mm x 18 mm x 10 mm. Period I

No. 2: Thin butt secured by chipping on either face, surfaces smooth and slightly rounded. Faces taper off smoothly towards the working edge. Cross section is irregular. Poorly defined, marginally beveled working edge, which is straight, blunt, and slightly nicked. Surfaces are partially glossy. Measurement: 122 mm x 20 mm x 12 mm. Period I

No. 3: Complete, thin, flat, and partially chipped butt. Surfaces rather roughly done, bears some deep scars. One lateral side is faceted, the other is fairly thin. Cross section is triangular. Marginal beveling for the working edge, which is markedly oblique at one end, and rounded at the other. This may be due to reshaping after partial use. Measurement: 100 mm x 18 mm x 7 mm. Period II A

No. 4: Roughly pointed and chipped butt. Shaft partly smoothened and partly roughly fabricated laterally rounded almost straight sided, irregular cross section. Well defined

asymmetrical beveling for the working edge, which is sharp and convex. Surfaces are partially glossy towards operative portion. Measurement: 106 mm x 18 mm x 14 mm. Period II A

No.5: Incomplete. Butt is broken. Smooth surfaces with minor damage, faceted sides. Almost parallelogrammic in section, straight sided. Marginal beveling for the working edge, which is straight, blunt and nicked due to use. Surfaces are non-glossy. Measurement: 70 mm x 18 mm x 5 mm. Period II A

No.6: Knob like grooved butt, perhaps for suspension. Partially smooth surfaces with scars and scotching, somewhat parallelogrammic in section. Asymmetrical beveling for the working edge, which is sharp and convex, slightly chipped at one end due to use. Surfaces are partially glossy. Measurement: 91 mm x 22 mm x 6 mm. Period II A

No.7: Thin flat butt. Smooth surfaces except for minor scars. Thin and almost straight sided, marginal beveling for the working edge, which is convex and blunt. Surfaces are non-glossy. There is a perforation just under the butt, perhaps for suspension. Measurement: 64 mm x 23 mm x 3 mm. Period III

No.8: Complete, thin flat butt, surfaces are smooth and flat except for minor scars, partly broken shaft, faceted sides, tapering smoothly near the operative portion, rectangular in cross section. Working edge is marginally bevelled and sharply curved. Surfaces are non-glossy. Measurement: 114 mm x 18 mm x 6 mm. Period IV

No.9: Thin flat butt. Roughly chipped surfaces with scratches, partially ground. No workmanship is in evidence for the lateral faces, smooth taper in the operative part; cross section is irregular. Marginal beveling for the working edge, which is narrow, straight, and slightly nicked due to use. Surfaces are non-glossy. Measurement: 87 mm x 20 mm x 7 mm. Period IV

No.10: Oblique butt. Surfaces smooth with minor scars, somewhat faceted sides, quadrilateral in form and parallelogrammic in cross section. Well defined sharp asymmetrical beveling for the working edge, which is straight, and slightly nicked. Surfaces are non-glossy. Measurement: 108 mm x 32 mm x 7 mm. Unstratified

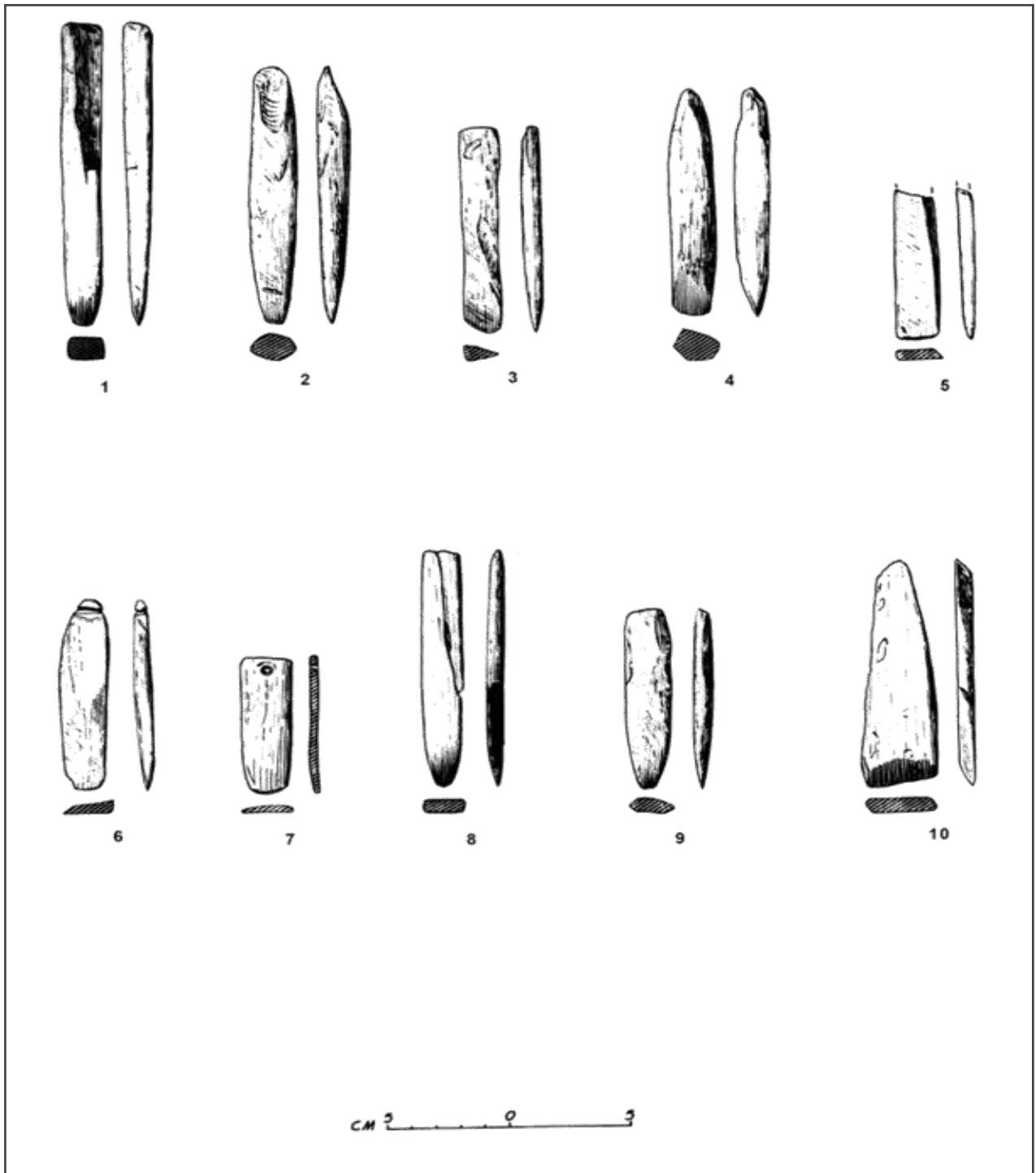


Fig. 4.2.12 Scrapers

J. POINTS (KNITTERS) AND ASSOCIATED OBJECTS

An interesting set of stone tools, bearing points at both the ends in vast majority, have come across in course of excavations., Examples showing points at one end have also been unearthed. Significantly, such tools, also made on bone, have striking similarity with the modern wooden knitting needles employed in the manufacture of costly shawls in Kashmir known as Jamwar shawls. These pointed tools are available in several varieties based mainly on their outline, size and section.

The most distinctive variety in this category is the one similar in size, fabrication, thickness, formation of the points and finish to the modern wooden double-pointed needles. Shafts in this category are nicely dressed, smoothed and ground, surfaces are highly glossy. These tools are variously shaped and have uniformly rounded, oval to rounded, irregularly rounded, flattened oval, square, rectangular or rounded rectangular in sections, in some examples, section varies at different sectors considerably. It has also been observed that in some specimens there are minor lateral cuts either at both ends or at one end only. It is apparent that such cuts may have some functional utility. The points are long or short, rounded, oval, or oval to round in section, rather blunt and stocky in many cases.

Such significant artifacts, altogether amounting to five hundred and twenty eight (528) have been exposed from the excavation; out of the total amount thirty seven (37) objects have been illustrated (Fig. 4.2.13 nos. 1 to 15 and Fig. 4.2.14 nos. 16 to 37). Illustration Nos.1 to 7 have been found from the Period I; Period IIA represents Nos. 8 to 19; Period IIB revealed Nos. 20 to 23; Period III exposed the specimen Nos. 24 to 28; Period IV unfolded only one example, i.e. No.29; Specimen Nos. 30 to 37 have been collected from the un-stratified or surface. Among these specimens, Nos. 10 and 11 are short points and slightly sharp, while the faces of their shafts are flat. Example No. 14 is a distinctive type with irregular sections in different sectors, a central ridge from mid-point towards one end on one face, and rough scotching up to mid-point on either face. Nos. 32 and 37 stand in a different category. It is difficult to define their purpose, as their both ends are fairly stocky, and one of them roughly scrubbed up to mid-point.

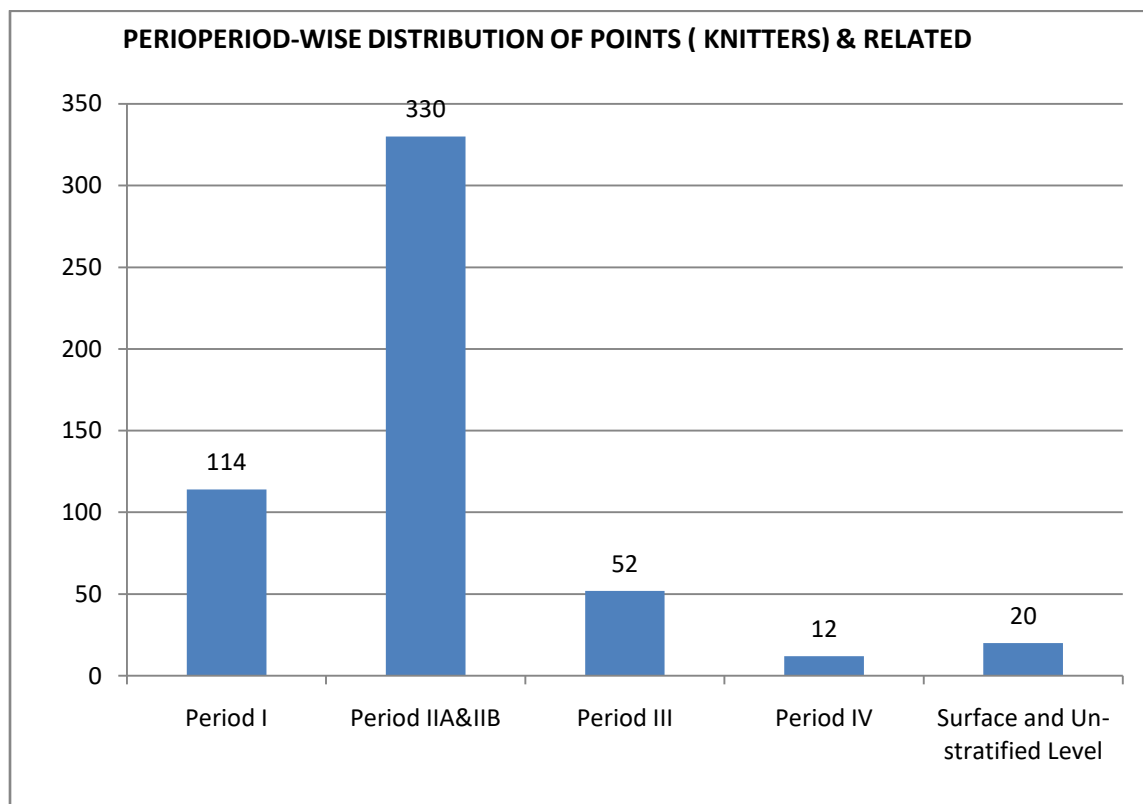
Another variety with distinctive feature is represented by points bearing transverse grooves either near one end or both the ends. Presumably these grooves have some definite functional utility, perhaps for weaving nets rather than they were effected for suspension. The grooves have been effected nicely in some cases, and roughly or haphazardly in others. Specimen No. 26 is the most distinctive in this

category. It has been deeply and nicely grooved near the terminal points. Its surfaces are fairly smooth and highly glossy, and display excellent workmanship.

Tools with points at both ends show, fairly good workmanship in some cases, casual or careless in others. Surfaces are generally non glossy, but partially or fully glossy in few cases.

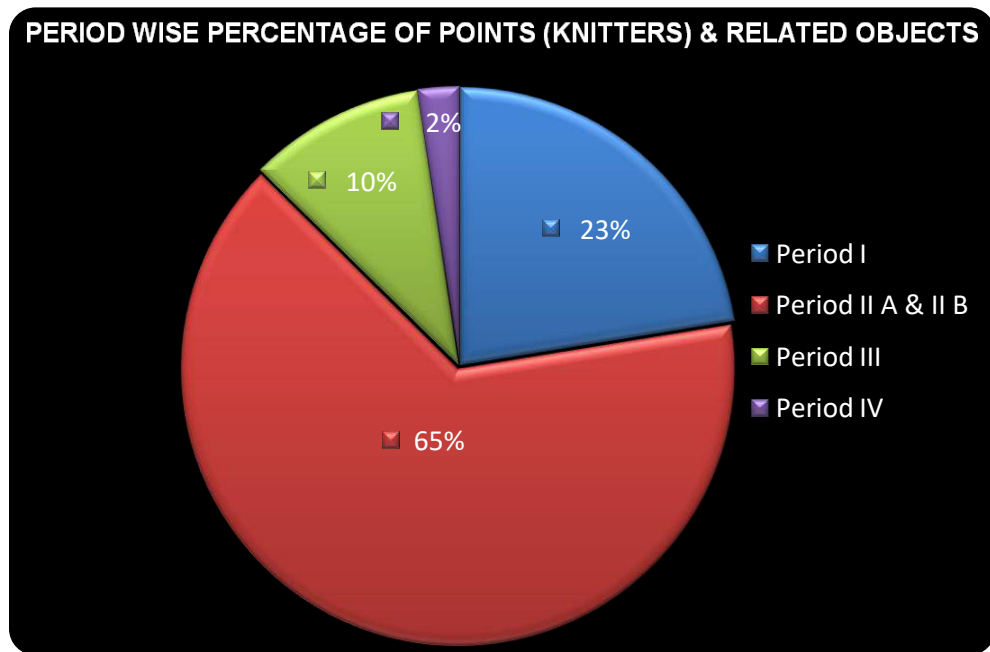
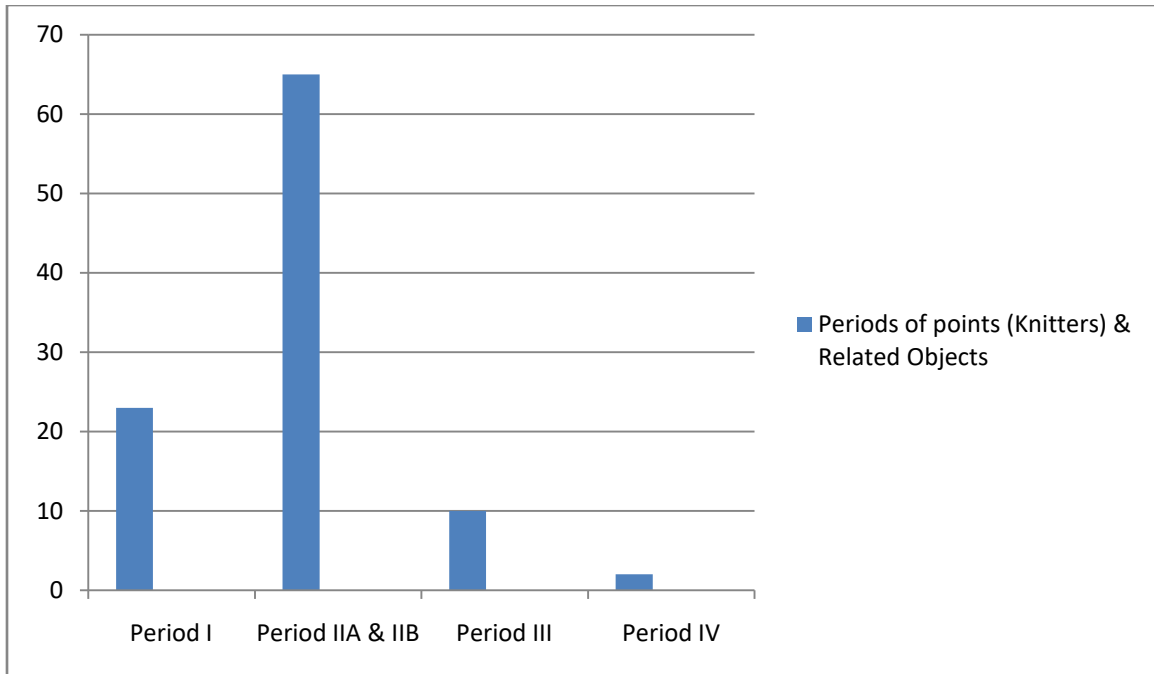
Period-wise distribution of points is as follows:

Period I: 114; Period IIA & IIB: 330; Period III: 52; Period IV: 12; Un-stratified and Surface: 20.



Excluding specimens from Un-stratified levels and surfaces, the period-wise percentage works out as follows:

Period I - 23%, Period IIA & IIB - 65%, Period III - 10%, Period IV - 2%.



No. 1: Complete except for a minor break in one point. Shaft nicely dressed, smoothed, and ground. Nearly straight sided, it is uniformly thick in the middle part where the contour tapers off smoothly to form terminal points, which are blunt, and flat. One of

the points is rounded; the other is oval to circular in shape. Surfaces are highly glossy. Width at mid-point is 8 mm and length 133 mm. Period I

No. 2: Complete except for minor breaks in the shaft. Shaft well dressed except for a few rough patches. Grinding striae are prominent. Surfaces are non-glossy. Nearly straight sided except in both ends where contour tapers smoothly to form terminal points, which are blunt. There is a minor lateral oblique cut at one end, and a minor lateral break at the other. 1/3 rd part of the shaft of the tool has been rounded with uneven patches. Width at mid-point is 8.5 mm. Length 180 mm. Period I

No. 3: Complete. Though the shaft has been dressed well, there are uneven patches and minor breaks. Partial smoothing and grinding are in evidence. Central 1/3rd of the shaft is unevenly flattened oval in section. Remaining portions are rounded, and the contour tapers to form terminal points, which are blunt. There is an oblique lateral cut at one end which may have been intentional, a minor lateral break occurs at the other end also. Surfaces are mostly non-glossy. Width at mid-point is 7 mm, length 134 mm. Period I

No. 4: Complete except for the terminal points, which are broken. Surfaces are smooth except for one face, where it is uneven and relatively slightly rough up to the mid-point. One half of the shaft is unevenly rounded, the other is nearly rounded. Surfaces are non-glossy. Width at mid-point is 7 mm, length 155 mm. Period I

No. 5: Complete. Shaft nicely dressed and grounded except for a small patch. Surfaces are smooth. Shaft has been rounded all through, half the part being comparatively thinner than the other. Surfaces are non-glossy. There is a marked lateral oblique cut at one end and a slight lateral oblique cut at the other. Width at mid-point is 8.5 mm. Length 95 mm. Period I

No. 6: Complete. Shaft roughly dressed and ground. Surfaces are partially smooth. Its thickness varies, as the shaft has been rounded in parts. Thus, one half has been evenly rounded, its point being blunt; the other half is relatively thick and roughly rounded. It is quite likely that the latter may have broken, while in fabrication, hence re-worked. Width at mid-point is 6 mm, length 99 mm. Period I

No. 7: Complete except for the terminal points, which are broken. Shaft nicely dressed and ground. Surfaces are smooth. There are variations in the section in different sectors. Thus the central one is rectangular, of the remaining, one end, which tends to be square, is broken, and the other, rounded rectangular, is also damaged. There are faint patches of glossiness. Width at mid-point is 6 mm, length 126 mm. Period I

No. 8: Complete except for a partial break along the vertical axis. Shaft has been unevenly dressed up to mid-point on one side. Both terminal points are blunt. There is a lateral oblique cut at one terminal point, which seems to be intentional. Position at the other point cannot be ascertained because of the vertical break. Surfaces are non-glossy. Width at mid-point is 8 mm. Length 127 mm. Period II A

No. 9: Complete, except for a minor lateral cut in one end, remained the shortest variant of No. 6. Shaft properly dressed. Surfaces are smooth, nicely ground, and non-glossy. One of the terminal points is stocky and rounded, apparent it was larger at this end, and after the break this end was re-worked and ground, hence stocky. Its section varies, one half up to mid-point approaches rectangular, then square to rectangular, and finally slightly rounded towards the farthest. One of the terminal points is thinner with a minor lateral cut. Width at mid-point is 5.5 mm, length 72 mm. Period II A

No. 10: Distinctive type. Complete except for a minor vertical break in one of the terminal points. Shaft nicely dressed and flattened. Its central portion is thicker compared to its size. Surfaces are smooth, except for minor abrasions, and non-glossy. Shaft is straight sided except in the farthest ends where it is triangular in form, and section is rounded rectangular. There are few incised lines and scratches on one face. Width at mid-point is 8 mm, length 84 mm. Period II A

No. 11: Complete. Shaft roughly dressed and ground. Workmanship is not up to the mark. Surfaces are not so smooth. Tool is thicker compared to its size. Its central part has a rectangular section with rounded sides, sections in the terminal ends are irregular, and approach flattened oval. Shaft has flat faces and rounded sides. Terminal points are blunt. Width at mid-point is 7.5 mm, length 60 mm. Period II A

No. 12: Incomplete. One part broken, central 1/3rd part is uniformly thick. Surfaces are smooth except for minor encrustations. Shaft well dressed and ground. Its section is oval in larger portion, and the rest has been rounded with contour tapering smoothly to form points, one of which is stocky. Surfaces are non-glossy. Length is 90 mm. Period II A

No. 13: Incomplete, one end broken. Shaft roughly dressed from mid-point towards the broken end, section in this part is irregularly quadrilateral. Contour tapers off smoothly to form the other point. Surfaces are partially smooth and non-glossy. Length is 83 mm. Period II A

No. 14: Complete except for a minor break on one face at the end. Shaft roughly dressed in parts. Surfaces are partially smooth and non-glossy. There are few scratches on either

face close to mid-point. One half of the shaft is thicker as compared to the other one which has a central ridge issuing from the mid-point. Its sections vary, rather irregular. Near the thicker half it approaches oval to rounded, while on the ridged side terminal point approaches triangular. Length is 88 mm. Period II A

No. 15: Complete, well- dressed shaft, surfaces partially smooth and glossy. Section approaches triangular in major part of shaft, which has a slightly curved profile. Both the terminal points are stocky, with one end being relatively thick and broad. Length is 55 mm. Period II A

No. 16: Incomplete, one part broken. Shaft dressed well and smoothed. Surfaces are smooth and non-glossy. Shaft is rounded rectangular in section. Extant terminal point is blunt and short. Its contour tapers off sharply near the terminal point. Length is 50 mm. Period II A

No. 17: Complete. Shaft dressed well and smoothed but for some scratches. Surfaces are partially glossy. Shaft has been rounded except in one part with a minor oblique cut at the thicker end. Length is 65 mm. Period II A

No. 18: Incomplete. Shaft is well dressed and smooth and surfaces are smooth and non-glossy. Its section is irregularly rounded. The larger portion of the shaft has a flattish but stocky terminal point; the other is shorter and sharp. Contour tapers off sharply in case of the latter to form a point. Length remains 65 mm. Period II A

No. 19: Incomplete, one end is broken. Shaft well dressed and rounded rectangular in section. Surfaces, partially smooth and glossy, are rounded and bear scratches, grooved near the intact end, which has a stocky point approaching oval in outline. Length is 46 mm. Period II A

No. 20: Incomplete, both terminal portions broken. Shaft somewhat roughly dressed. There are variations in section. Central part is square and relatively thick, one flank is relatively thin and rectangular and the other unevenly rounded. Surfaces are smooth and partially glossy from mid-point towards thick end, and partially smooth and non-glossy towards the other. Width at mid-point is 6 mm, length 97 mm. Period II B

No. 21: Incomplete, one end is broken. Shaft has been roughly dressed. Surfaces are partially smooth and glossy. Section is irregularly square. It bears an eye/perforation near the intact end, which is square. This needle type point is a solitary specimen of its kind in stone. Length is 63 mm. Period II B

No. 22: Incomplete. One end is broken. Nicely dressed and ground. Surfaces are smooth and glossy. Irregularly grooved near the intact end, which is stocky and rounded in outline. Shaft below groove approaches triangular in section. Length is 50 mm. Period II B

No. 23: Nearly complete except for the thicker end which is partially broken. Shaft nicely dressed and ground. Surfaces are smooth and partially glossy and roughly grooved near the thicker end. Major portion of shaft is rectangular in section, contour tapers off smoothly from the grooved end terminating in a blunt point. Length is 60 mm. Period II B

No. 24: Incomplete, broken in terminal ends with a lateral break in one part. Its central portion is uniformly thick, remaining parts rounded. Surfaces are partially smooth and non-glossy. Length is 90 mm. Period III

No. 25: Complete except for a minor break in thicker end on one face. Shaft nicely dressed and ground. Surfaces are smooth and partially glossy. Rounded in section and grooved near the thicker end which is fairly stocky and looks knob-like. Its contour tapers off smoothly from the grooved end terminating in nicely shaped blunt point. Length remains 64 mm. Period III

No. 26: Complete. Shaft nicely dressed and ground. Surfaces are smooth and highly glossy, deeply grooved near both ends. Shaft is rounded rectangular in section between the grooves, its contour being straight and uniformly thick. One end of the tool is triangular in outline with a flattish top, the other is rounded. Length is 76 mm. Period III

No. 27: Complete. Shaft roughly dressed and ground, surfaces are partially smooth, with minor encrustations and non-glossy, partly grooved near one end. Major portion of shaft below groove is rounded rectangular in section; the remaining one has been rounded, and terminates in a stocky point. Length is 79 mm. Period III

No. 28: Incomplete, one end broken. Shaft well dressed and deeply grooved near both ends, and rounded between grooves. Surfaces are smooth and partially glossy. Intact end is stocky and rounded in outline. Contour tapers off smoothly towards the broken end. Length is 45 mm. Period III

No. 29: Complete. Shaft roughly dressed. Smoothing is not up to mark, faces are slightly pitted. Surfaces are partially glossy. Section in the thin and broad part approaches Plano-convex; central part of the shaft approaches flattened oval, and towards the

pointed end it is roughly rounded. Contour tapers off sharply to form a point which is blunt. Length is 63 mm. Period IV

No. 30: One end broken, surfaces are smooth, nicely ground and non-glossy. Section is uniformly rectangular except for the intact end where it is unevenly rounded. Its contour tapers off smoothly to form the intact point. Width at mid-point is 7 mm, length 88 mm. Unstratified

No. 31: Complete except for a minor break in one point. One half of the shaft, which is thicker than the other, is rounded near the terminal point, trapezoidal up to mid-point, and flattened oval up-to the other point. Shaft is nicely dressed; surfaces are smooth and partially glossy. Width at extreme ends is about 7 mm, length 63 mm. Unstratified

No. 32: Incomplete. The upper and lower part are broken, only the central portion of the shaft is intact. Its major portion has been nicely dressed, smoothed, ground and rounded. One part of the existing shaft is comparatively thinner, rounded and scrubbed roughly.. The un-scrubbed portion is glossy. Length is 63 mm. Unstratified.

No. 33: Complete. In outline it is a paddle type. Shaft nicely smoothed. Surfaces are smooth and partially glossy. Narrower end neatly grooved, either for suspension or intended for some other functional utility, its terminal point, rounded in outline, is stocky. Section below the groove is oval nearly up to mid-point and further towards the other end broader and thinner, terminating in a somewhat curved base. Its functional utility is uncertain may have been used for some sort of knitting. Length is 43 mm. Unstratified

No. 34: Complete except for a minor chip off in the deeply grooved thicker end and a minor lateral break near the other end. Shaft nicely dressed and ground. Surfaces are smooth and partially glossy. Contour tapers off sharply from the thicker end and terminates in a point. The grooved end is stocky and roughly rounded, major part of shaft below the groove is triangular in section, while the remaining portion is rounded. There are some minor lateral scratches from mid-point towards pointed end. Length is 63 mm. Unstratified

No. 35: Incomplete, one end is broken. Shaft nicely dressed and ground. Surfaces are smooth and partially glossy, irregularly grooved near the intact end which is stocky and nearly rounded in outline. Shaft below the groove is oval to round. Length is 53 mm. Unstratified

No. 36: Complete. Shaft has been dressed well and ground. Surfaces are smooth and partially glossy. Central portion of shaft is broad and rounded rectangular in section, one axial side flattened oval and the other rounded. Contour of shaft tapers off sharply from mid point towards both pointed terminal ends. There is a lateral oblique cut at one end, the other end is blunt. There are minor scratches in the central part of the shaft. Width at mid-point is 9 mm, length 108 mm. Unstratified

No. 37: Complete, major portion of shaft has been nicely dressed and ground, surfaces are smooth and partially glossy in this part, section rounded triangular. One end is scrubbed and thinned; it is rounded oval in section. Length remains 47 mm. Unstratified

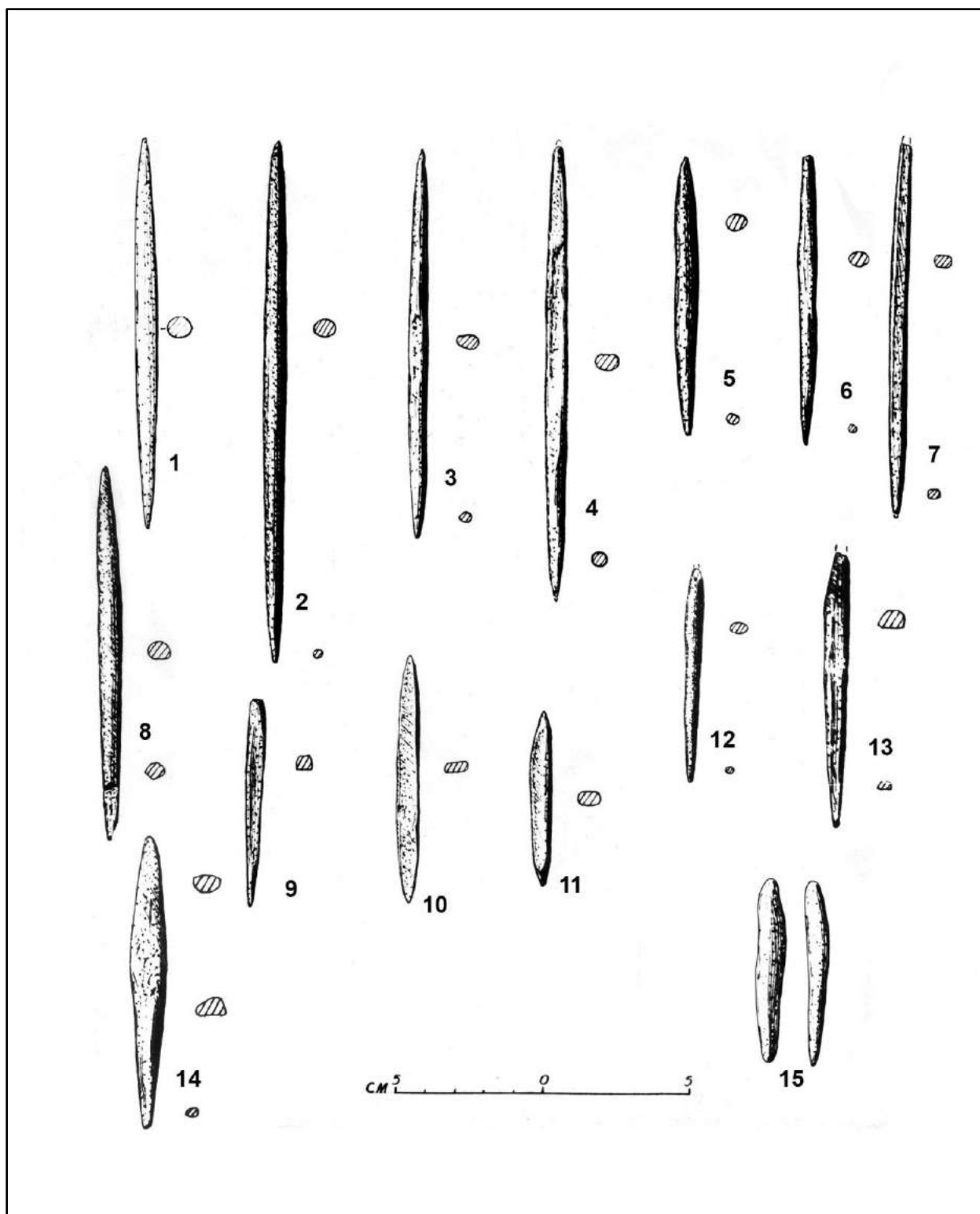


Fig. 4.2.13 Points (Knitters)

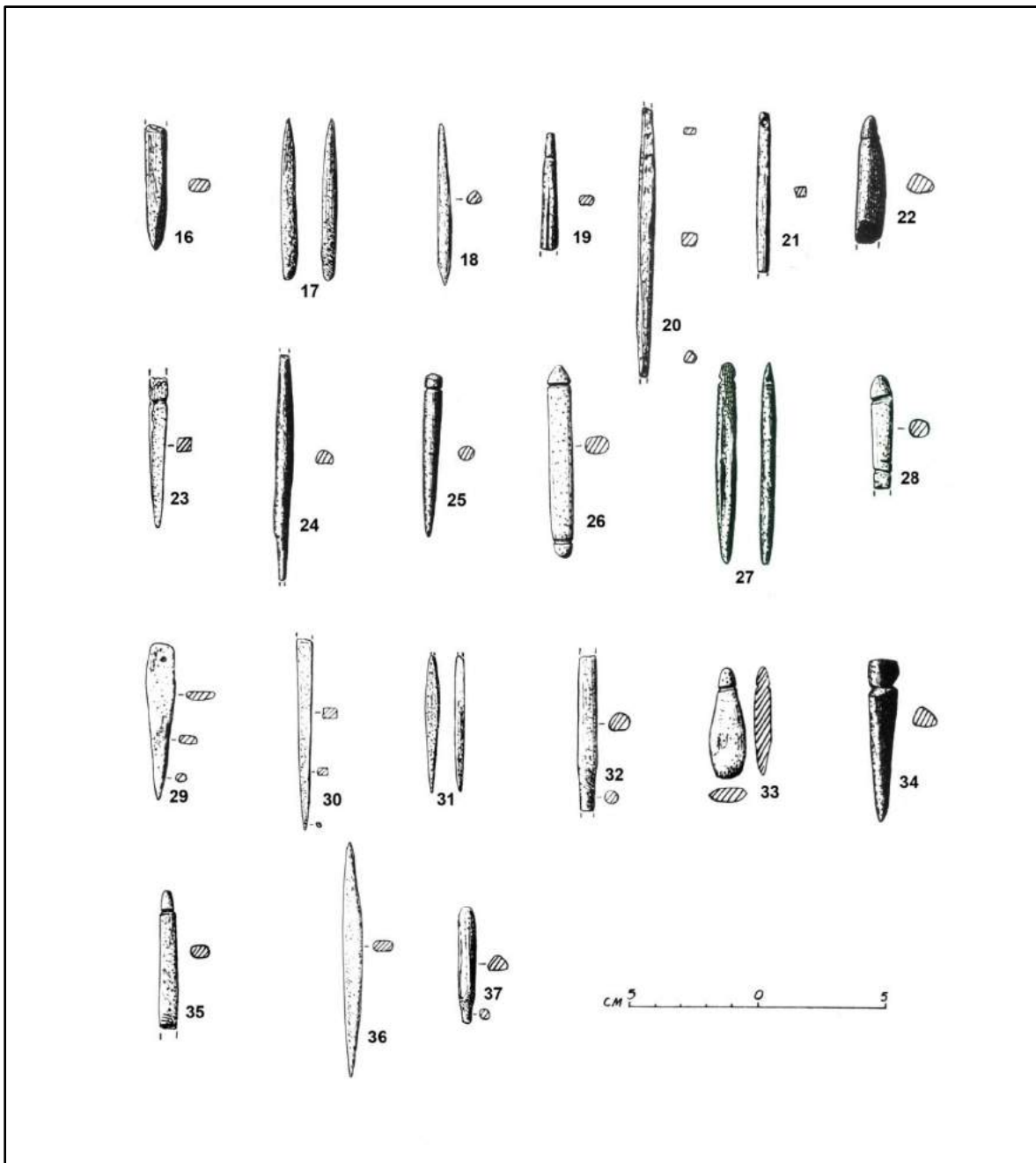


Fig. 4.2.14 Points (Knitters)

K. ADZES

The adzes in the Burzahom collection are prolific in number, amounting to one hundred and fifteen (115) and varied in form. Out of the said objects, thirty seven (37) assorted adzes have been illustrated here (Fig. 4.2.15 nos. 1 to 12, Fig. 4.2.16 nos. 13 to 24 and Fig. 4.2.17 nos. 25 to 37). From the stratigraphical point of view, illustrated specimen Nos. 1 to 9 have been found from Period I, Period IIA uncovered specimen Nos. 10 to 20, Nos. 21 to 24 have been unearthed from Period IIB, Period III yielded example Nos. 25 to 31, No. 32 is the only specimen from Period IV, while Nos. 33 - 37 are from the Un-stratified Level and Surface.

The illustrations clearly show that the determinant of an adze is its asymmetrical generally well defined and prominently marked bevelling on one face only, while on the other if it done it is more or less marginal. This type of bevelling makes the blade distinctly facettted. The sharply defined bevelling either makes an obtuse angle or else it slopes down towards the working edge, thus resulting in a prominently facettted blade, the working edge being off the centre. In isolated cases the bevelling is not sharp or well defined, owing to regrinding or reshaping the operative part.

It has also been observed that there is no lopsidedness in the blade of adzes. This may be because of the method of use as distinguished from an axe, where apart from a curved trajectory during use, the infliction of angle makes the blade lopsided. In case of an adze generally full blade is in use, and infliction of angle blows is not a normal practice. The butt is generally thin, flat, pointed and chipped laterally for hafting. Sometimes chipping is extended well below the butt. In a few cases the butt is pointed or rounded and truncated.

The lateral margins are either facettted, rounded, or roughly worked. It is apparent that workmanship in fabricating the butt or lateral margins is not as marked as in the faces and the blade. Grinding on the faces is good.

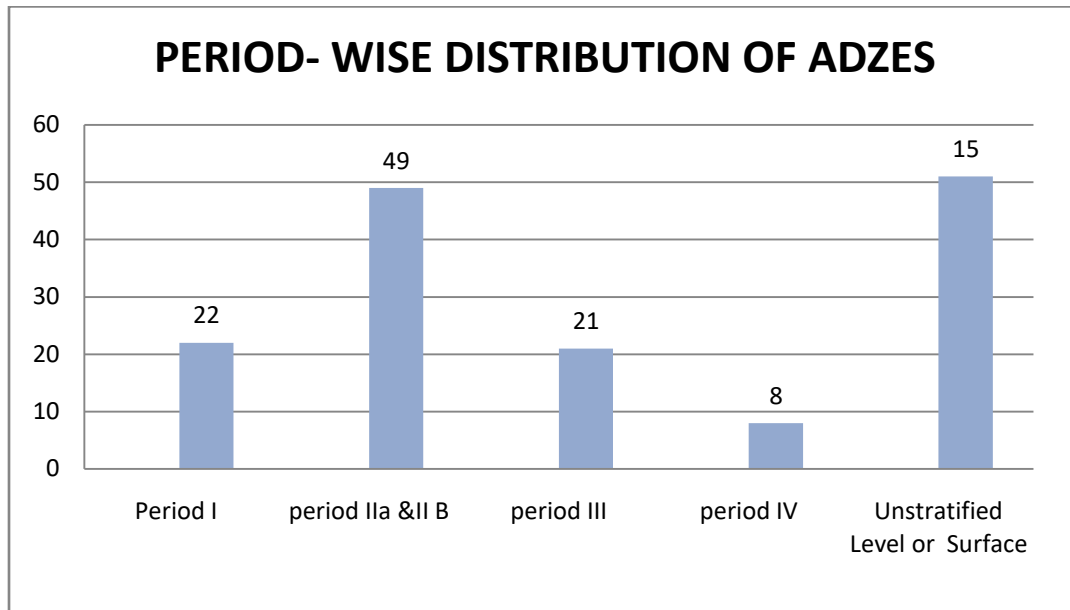
Butts of the adzes are generally quadrilateral in form a few triangular or trapezoidal ones are also in evidence. In section, these are flattened oval, rectangular, rectangular with rounded sides, lenticular, plano-convex or oblong, and in some cases, it is irregular. Surfaces are generally smooth, flat or convex, with pits, scars or chips off in a number of cases, while the blades and the bevelled portions are invariably glossy. In some cases glossiness extends up to lateral margins also. In some specimens faces are highly glossy.

Blades of the adzes are generally thin and sharp, narrow or medial, broad in isolated specimens. These are nicked or slightly chipped in some cases. The working edges are generally convex, straight or straight with slightly rounded corners; convex and straight ones dominate. The largest adze measures 165 mm, the smallest one is 68 mm in length; the thickest one measures 30 mm thick and the broadest adze measures 82 mm wide, and the narrowest is 37 mm in width.

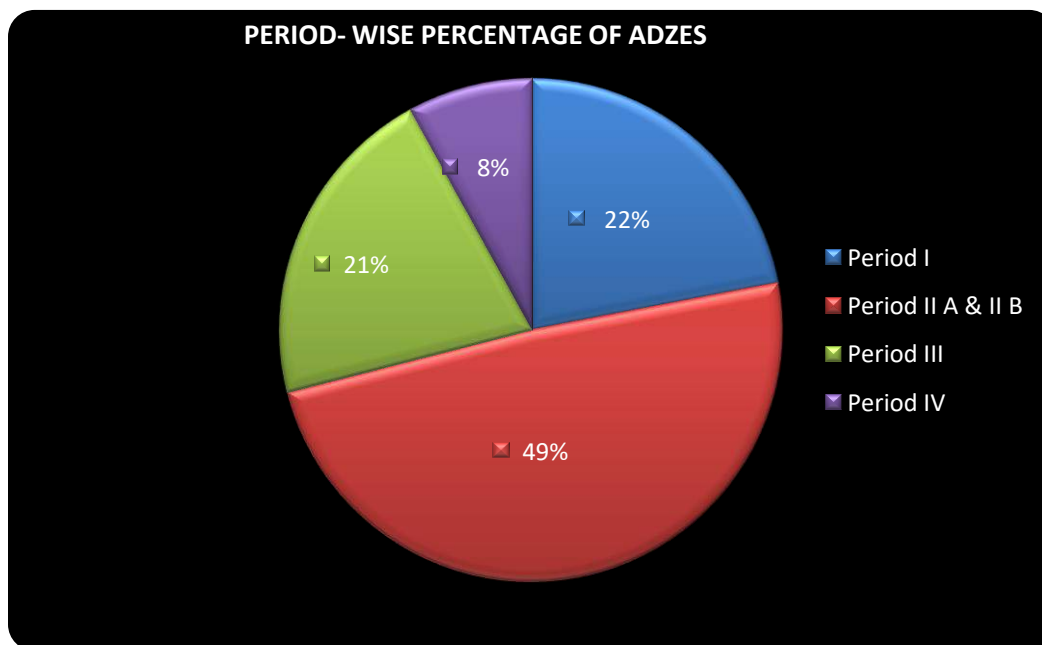
From the stratigraphical point of view, Nos. 1- 9 are from Period I, Nos. 10 - 24 are from various levels of Period IIA and IIB, Nos. 25 - 31 are from Period III, No. 32 is from Period IV, Nos. 33 - 37 are from the unstratified and surface.

The period-wise break-up of adzes is as follows:

Period I: 22, Period II A and B: 49, Period III: 21, Period IV: 8, Un-stratified Level or Surface: 15.



Excluding specimens from Un-stratified levels and surface, the period-wise percentage works out as follows:



Period I -22% Period II A & II B- 49% Period III – 21%, Period IV –8%

No. 1: Complete. Chipped and pointed butt. Smooth surfaces except for the lateral margins. Triangular in form, roughly chipped laterally, rectangular in section. Well defined asymmetrical bevelling at one corner on one face and marginal on the other for the working edge, which is sharp and nearly straight. Faces are glossy. Measurement: 89 mm x 44 mm x 18 mm. Period I

No. 2: Complete and large-sized tool. Roughly rounded butt with an oblique cut, smooth and flat surfaces, except for a few scars and notches, roughly faceted sides, approaching rectangular in section. Well defined rounded sloping asymmetrical bevelling on one face and marginal on the other for the working edge, which is sharp and convex. Faces are glossy. Measurement: 150 mm x 70 mm x 24 mm. Period I

No. 3: Complete, slightly chipped, thin and flat butt. Surfaces are partially smooth, with a few notches and scars. Roughly worked and rounded lateral margin. Almost straight sided. Near rectangular in form, with a narrow blade, and flattened oval in section. Poorly defined asymmetrical bevelling on one face and marginal on the other for the working edge, which is convex and chipped. Faces are partially glossy. Measurement: 112 mm x 37 mm x 15 mm. Period I

No. 4: Almost Complete. Flat truncated butt. Surfaces nicely ground and smoothed except for a few deep scars, laterally rounded and thin, trapezoidal in form, flattened oval to lenticular in section. Well defined rounded sloping bevelling on one face and marginal on the other for the working edge which is sharp and convex. Surfaces are highly glossy. Measurement: 80 mm x 46 mm x 15 mm. Period I

No. 5: Complete, chipped thin butt, slightly broken. Partially smooth pitted and scarred surfaces, laterally sharply rounded with few bruises, nearly trapezoidal in form, irregularly lenticular in section. Well defined sharp asymmetrical bevelling on one face and marginal on the other for the working edge, which is straight and nicked at a few points. Surfaces are glossy and greenish in colour. Measurement: 107 mm x 61 mm x 18 mm. Period I

No. 6: Roughly rounded and chipped butt. Almost smooth surfaces, with few scars and chips off. Roughly chipped, irregularly rounded lateral margins, somewhat rectangular in section tending to be barrel shaped. Well defined sloping asymmetrical bevelling on one face and marginal on the other for the working edge which is sharp, nearly straight and somewhat rounded near the corners, fully glossy faces. Measurement: 89 mm x 55 mm x 18 mm. Period I

No. 7: Butt is broken. Smooth surfaces except for a few chips off and scars. Facetted sides except for minor bruises. Almost trapezoidal in form, section is irregular. Extremely well defined sharp asymmetrical bevelling on one face and marginal on the other for the working edge, which is sharp, almost straight, nicked and slightly chipped. Surfaces are glossy all over. Measurement: 88 mm x 65 mm x 18 mm. Period I

No. 8: Thin chipped butt. Smooth and even surfaces with notches and chipped. Laterally roughly chipped and rounded, nearly trapezoidal in form, section irregular, well defined sharp asymmetrical bevelling on one face and marginal on the other for the working edge which is sharp and straight. Surfaces are glossy all over. Measurement: 88 mm x 59 mm x 19 mm. Period I

No. 9: Thick rounded butt, below it pitted on one face, irregularly ground, partially smooth surfaces, laterally rounded, straight sided, quadrilateral in form, section irregular trapezoidal. Well defined sloping asymmetrical bevelling on one face and marginal on the other for the working edge which is convex, and chipped due to use, partially glossy below mid-point. Measurement: 126 mm x 54 mm x 28 mm. Period I

No. 10: Complete. Roughly pointed and obliquely chipped butt. Partially smooth surfaces with few scars. Laterally facetted faces flat, triangular in form, rectangular in section. Well defined asymmetrical bevelling on one face and marginal on the other for the working edge, which is convex, slightly splayed out, and bruised at one end. Only bevelled portion is glossy. Measurement: 102 mm x 56 mm x 13 mm. Period IIA

No. 11: Complete. Pointed butt with lateral chipping. One face is heavily scarred, the other smooth barring a few pits. Facetted on one side, the other is roughly chipped, triangular in form and irregular in section. Well defined asymmetrical bevelling on one face and marginal on the other for the cutting edge which is sharp and convex. Faces are glossy except for scarred and pitted portion. Measurement: 158 mm x 62 mm x 20 mm. Period IIA

No. 12: Complete, roughly chipped, irregularly rounded, flattish butt. Scarred, chipped, and pitted surfaces. Roughly worked and chipped lateral margins. Quadrilateral in form, rounded rectangular in section. Sharp asymmetrical bevelling near the operative part on one face and marginal on the other for the working edge, which has a broad blade, sharp and nearly straight but rounded near the corners, and bruised at one end, only bevelled portion is glossy. The tool seems to have been reshaped for use. Measurement: 125 mm x 75 mm x 20 mm. Period IIA

No. 13: Complete, flat, relatively thin butt with a few chips off around it. Smooth surfaces, nicely ground except for a few notches and scars. Lateral margins roughly worked and rounded, quadrilateral in form and flattened oval in section. Well defined asymmetrical and sharp bevelling on one face for the working edge which is sharp and straight. Bevelling on the other face is also noteworthy as it is smoothly done, and carried over a larger portion. Faces including the butt are glossy to highly glossy. Measurement: 99 mm x 58 mm x 22 mm. Period IIA

No. 14: Complete, chipped flat and thin butt. Smooth, nicely ground surfaces. Laterally, roughly worked and rounded, quadrilateral in form, nearly lenticular section. Well defined sharp asymmetrical bevelling on one face and marginal on the other for the working edge which is sharp and straight but slightly rounded near the corners and nicked at a few points. Surfaces are highly glossy except for lateral margins. The tool seems to have been reshaped and reground after partial use. Measurement: 83 mm x 56 mm x 20 mm. Period IIA

No. 15: Complete, thin flat butt with a chip off on one face just below it. Smooth and flat surfaces with minor encrustations and scars, faceted sides, almost trapezoidal in form, rounded rectangular in section. Well defined sharp asymmetrical bevelling making an obtuse angle on one face and marginal on the other for the working edge which is sharp and convex. Surfaces are partially glossy. Measurement: 75 mm x 48 mm x 14 mm Period IIA

No. 16: Complete, chipped, rounded and thin butt. Smooth surfaces except for scars, pits and a few chips off. Laterally chipped and rounded, almost quadrilateral in form, flattened irregularly oval in section. Well defined sharp asymmetrical bevelling for the working edge which is convex and nicked due to use on one face, bevelling on the other is also conspicuous. Surfaces are glossy all over. Measurement: 82 mm x 52 mm x 19 mm. Period IIA

No. 17: Rounded butt, partially rough surfaces with some encrustations, deep scars and few chips off on one face. Laterally rounded, partially roughly worked, nearly oval in section with one sector tending to be conical. Well defined asymmetrical bevelling for the working edge, which is sharp and nearly straight but rounded near the corners, slightly nicked on one face. Bevelling on the other face is nearly well defined. Only bevelled portion is glossy. Pattern of bevelling on both the faces suggests that the tool may have been used with either face. It is a large- sized tool. Measurement: 165 mm x 68 mm x 30 mm. Period IIA

No. 18: Flat and thin butt, chipped mostly on one face. Partially smooth faces, chipped at few points on both sides. Roughly chipped and worked lateral margins. Almost parallelogrammatic in form, section irregular but approaching lenticular, extremely well-defined sharp asymmetrical bevelling on one face and marginal on the other for the working edge which is sharp and markedly oblique at one end on one face. Surfaces are glossy. Measurement: 93 mm x 53 mm x 15 mm. Period IIA

No. 19: Butt end broken. Large-sized with a broad blade, surfaces are smooth with minor scars, laterally rounded; section slightly irregular, approaching Plano-convex. Well defined sharp asymmetrical bevelling for the cutting edge which is sharp, broad, convex, and slightly splayed out on one face, bevelling on the other is marginal, glossy all over. Conjectural measurement: 117 mm x 78 mm x 28 mm. Period IIA

No. 20: Thick, rounded and chipped butt. Partially smooth and notched surfaces, scarred with few chips off. Laterally rounded, roughly chipped at few points, nearly quadrilateral in form, flattened oval in section. Well defined asymmetrical bevelling on both faces for the working edge which is sharp and straight. Measurement: 86 mm x 54 mm x 20 mm. Period IIB

Note: The bevelled portion has reddish tinge on it. Microscopic examination has revealed that this reddish tinge is part of the encrustation on the pitted portion.

No. 21: Complete, pointed butt. Partially smooth surfaces with few pits and scars. Laterally roughly pecked and rounded, triangular in form, oval in section. Not so well defined asymmetrical bevelling on one face for the working edge, which is sharp and convex, bevelling on the other face is marginal. Faces are glossy below mid-point and in patches above it. Measurement: 115 mm x 53 mm x 24 mm. Period IIB

Note: - The working edge of this tool is oblique at one end, possibly due to curved trajectory during use.

No. 22: Complete, thin chipped butt. One face partially smooth with a few scars, the other nearly flat, roughly pecked with minor chips off. Workmanship is not up to the mark. One of the lateral margins is roughly done, rounded in places; the other is thinner, and chipped at few points, irregularly lenticular in section. Well defined asymmetrical bevelling for the working edge which is sharp and convex on one face, bevelling on the other face is fairly adequate. One face except for the bevelled portion, is more or less glossy, the other is partially glossy, green in colour. Measurement: 125 mm x 58 mm x 18 mm. Period IIB

No. 23: Partially broken thin, chipped, and flat butt, chipped surfaces with some scars on one face. One lateral margin is round; the other is thin and broken, rounded quadrilateral in form, section is irregular. Poorly defined sharp asymmetrical bevelling for the cutting edge which is convex and oblique at one end on one face, bevelling on the other is just marginal. Surfaces are glossy at some places. Measurement: 95 mm x 48 mm x 14 mm. Period IIB

No. 24: Butt apparently broken. Surfaces smooth except for a few scars and chips off. Lateral margins roughly did, almost straight sided, rectangular in form, approaching parallelogrammatic in section. Not so well defined asymmetrical bevelling on one face and marginal on the other for the working edge which is slightly convex, and bruised at one end on one face. Surfaces are glossy. Measurement: 72 mm x 48 mm x 14 mm. Period IIB

No. 25: Complete. Broad, flattish and obliquely truncated butt with few chips off on one face just below, smooth and flat surfaces except for few scars. Laterally roughly worked and almost curved. Quadrilateral in form, rounded rectangular in section. Facetted blade, markedly well defined asymmetrical bevelling making a sharp obtuse angle on one face for the working edge, which is sharp and straight. Faces are glossy. Measurement: 78 mm x 50 mm x 13 mm. Period III

No. 26: Complete, flat and chipped butt. Smooth flat surfaces except for scars on face, facetted sides, quadrilateral in form, rectangular in section. Well defined asymmetrical bevelling on one face and marginal on the other for the working edge which is sharp and straight. Faces are glossy except for scarred and pitted portions. Measurement: 158 mm x 62 mm x 20 mm. Period III

No. 27: Broken, only operative part is intact. Smooth surfaces, sharp well defined asymmetrical bevelling on one face and marginal on the other making an obtuse angle for the cutting edge, which is nicked, sharp and straight but rounded near the corners, with few bruises, chips off on one face; surfaces are glossy. Measurement: ? 82 mm x 18 mm. Period III

No. 28: Complete. Flattish butt, roughly rectangular, chipped on one face. Nicely ground, smooth and flat surfaces except for a few scars. Facetted to rounded sides with few chips off. Quadrilateral in form, rounded rectangular in section. Poorly defined asymmetrical bevelling on one face for the working edge, which is sharp and straight. It is rounded near the corners, and nicked due to use. Bevelling on the other face is more than marginal. The tool is glossy all over except for a few scratches and patches. Measurement: 136 mm x 62 mm x 22 mm. Period III

Note: - The poorly defined bevelling suggests that it may have been used as an axe, or reshaped and reground after partial use, the working edge is slightly off the centre.

No. 29: Complete, thin and chipped flat butt, smooth and flat faces, laterally rounded. Quadrilateral in form, and rounded rectangular in section. Not so well defined asymmetrical bevelling for the working edge which is sharp and convex. Bevelling on the one face slopes down smoothly, on the other, although properly defined, runs for a shorter portion. It is quite likely that the tool was used with either face. The bevelled portion is glossy and partially glossy above it. Measurement: 64 mm x 47 mm x 18 mm. Period III

No. 30: Complete, thin chipped butt, roughly done. Partially smooth surfaces, with few deep scars, faceted sides, roughly trapezoidal in form, Plano-convex in section. Well defined sharp asymmetrical bevelling on one face and marginal on the other. Faces are glossy including lateral margins. Measurement: 85 mm x 52 mm x 15 mm. Period III

No. 31: Thin slightly chipped butt. Smooth surfaces with few scars and chips off, faceted sides, almost quadrilateral in form and nearly rectangular in section. Poorly defined sloping asymmetrical bevelling for the working edge which is sharp and convex on one face, bevelling on the other is also conspicuous. Pattern of bevelling suggests that the tool may have been used with both faces. Surfaces are glossy all over. Measurement: 99 mm x 54 mm x 17 mm. Period III

No. 32: Complete, flat thin butt. Surfaces flat but not well ground, with minor scars and encrustation. Laterally lighter rounded, quadrilateral in form, rounded rectangular in section. Not so well defined asymmetrical bevelling for the working edge which is fairly sharp and almost straight on one face and the bevelling on the other face is just marginal. Only the bevelled portion on both the faces is glossy. The blade is relatively narrow Measurement: 112 mm x 40 mm x 15 mm. Period IV

No. 33: Complete. Roughly chipped and pointed butt, smooth and flat surfaces except for a few scars. Laterally rounded, approaching triangular in form, rounded rectangular in section. Well defined asymmetrical bevelling for the working edge which is straight and rounded at one corner on one face, evidences of minor reshaping and regrinding. Faces are highly glossy. Lateral margins partially glossy. This is the smallest adze in the Burzahom collection. Measurement: 68 mm x 45 mm x 13 mm. Surface

No. 34: Complete. Round hammered butt. Partially smooth surfaces with few notches and scars. Laterally roughly worked and rounded. Trapezoidal nearly in form, oblong flattened oval in section. Well defined asymmetrical bevelling for the working edge,

which is sharp, nearly straight but rounded near the corners on one face, and marginal bevelling on the other. One face is glossy, the bevelled portion of the other face is glossy, so also a few portions above it. Measurement: 85 mm x 47 mm x 20 mm. Surface

No. 35: Thin flat chipped butt. Surfaces smooth except for few chips off on both the faces. One lateral margin chipped and faceted, the other roughly chipped and rounded, almost quadrilateral in form, section irregularly rectangular. Well defined asymmetrical bevelling for the working edge, which is sharp and straight and somewhat rounded near the corners on one face, bevelling on the other is just marginal. The working edge is sharp, glossy, straight, and nicked due to use. Surfaces are glossy, except for the roughly chipped portions. Measurement: 66 mm x 54 mm x 12 mm. Surface

No. 36: Thin, chipped and truncated butt. One face chipped nearly up to the mid-point with a few chips off below also, the other one heavily encrusted, almost up to mid-point, roughly trapezoidal in form, lenticular in section. Lateral margins thin and roughly worked. Well defined asymmetrical bevelling for the working edge which is sharp, nearly straight but rounded near the corners, oblique at one end on one face, bevelling on the other is just marginal. Surfaces are partially glossy. Measurement: 98 mm x 58 mm x 16 mm. Surface

No. 37: Complete, obliquely truncated butt terminating in a point, smooth except for some chips off. Lateral margins roughly chipped, approaching triangular in form, section is irregular. Well defined asymmetrical beveling on one face making an obtuse angle for the working edge which is convex, bevelling on the other face is marginal. Faces are glossy. Lateral margins partially glossy. Measurement: 105 mm x 55 mm x 16 mm. Surface

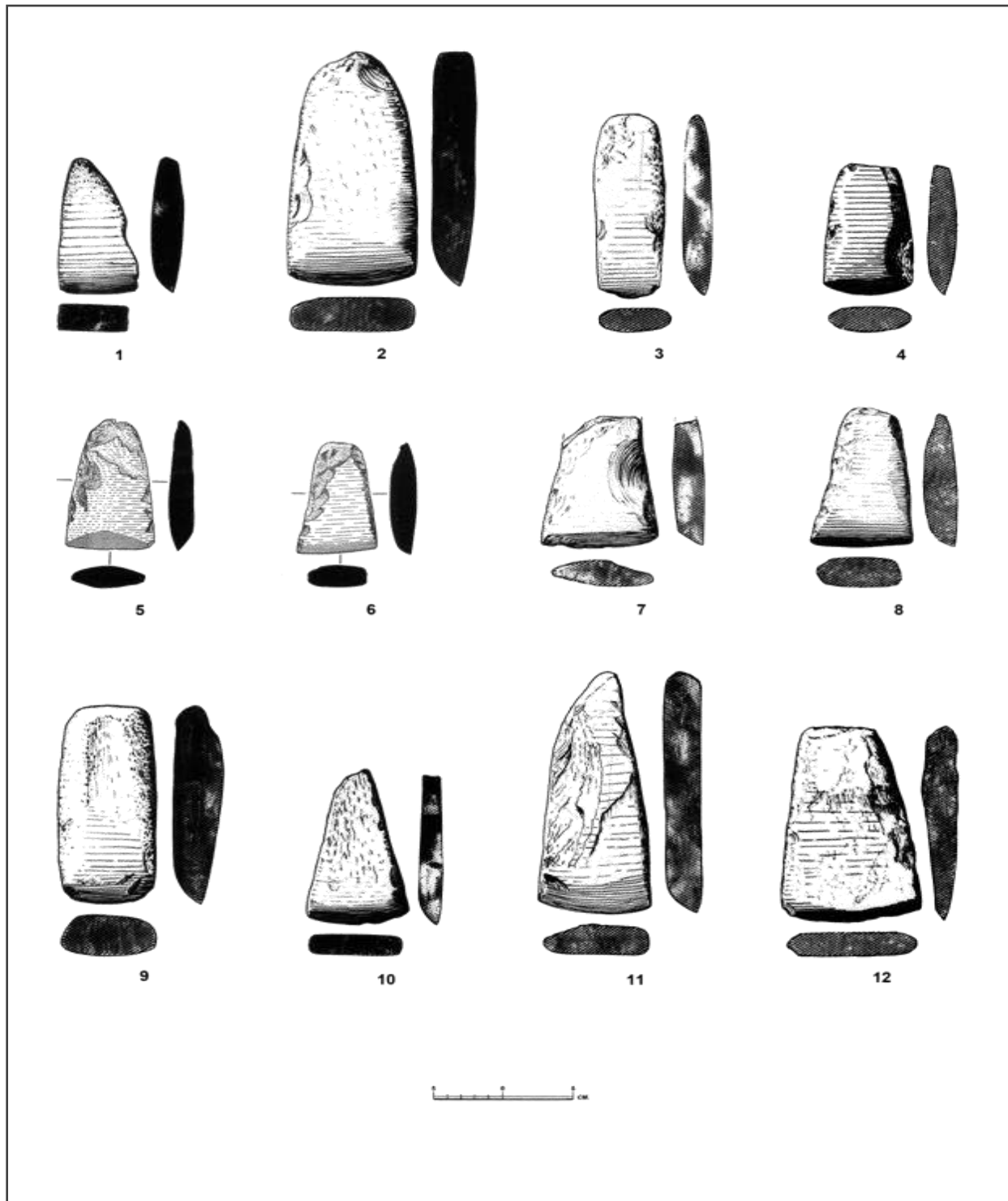


Fig.4.2.15 Adzes

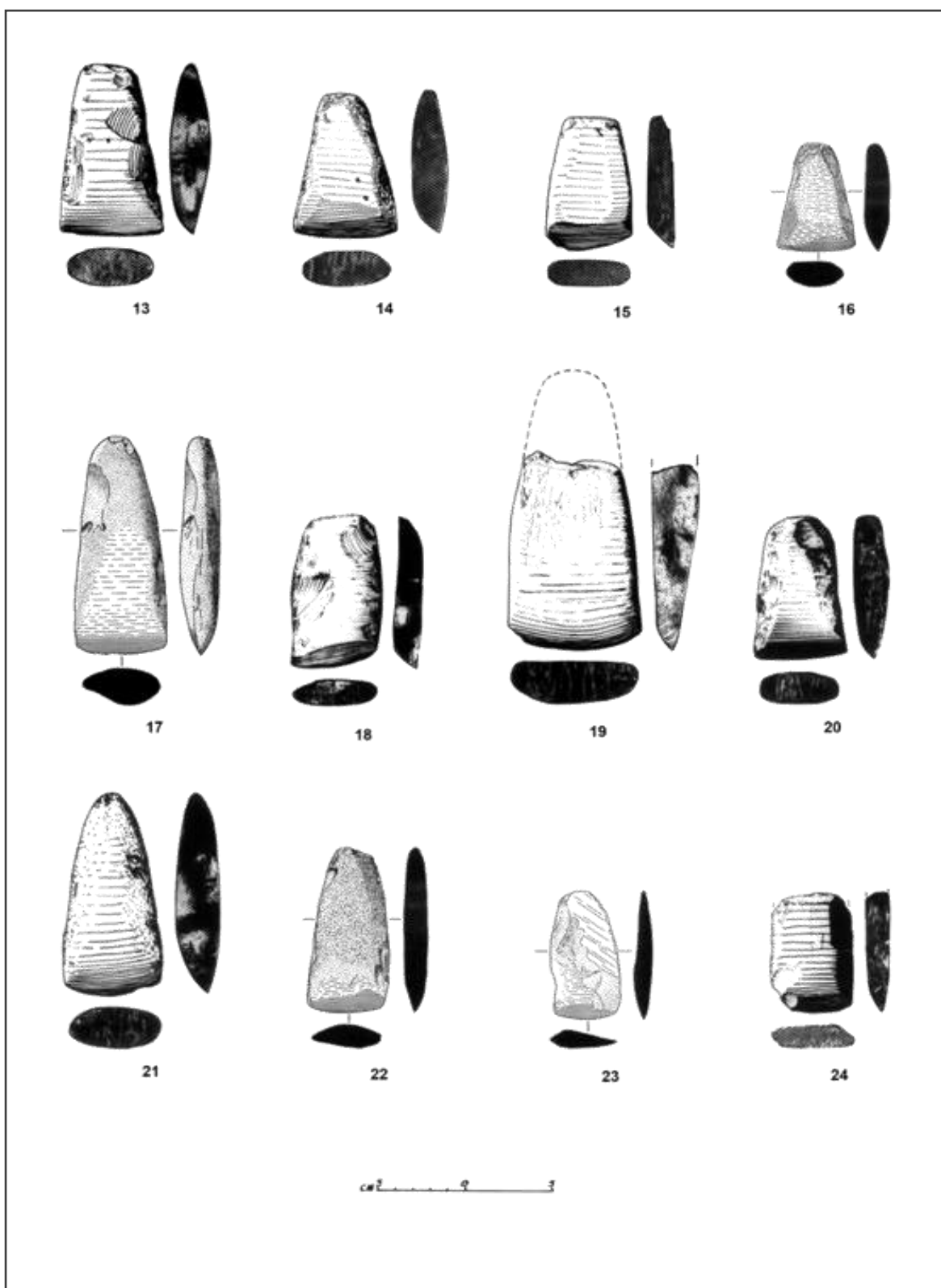


Fig. 4.2.16 Adzes

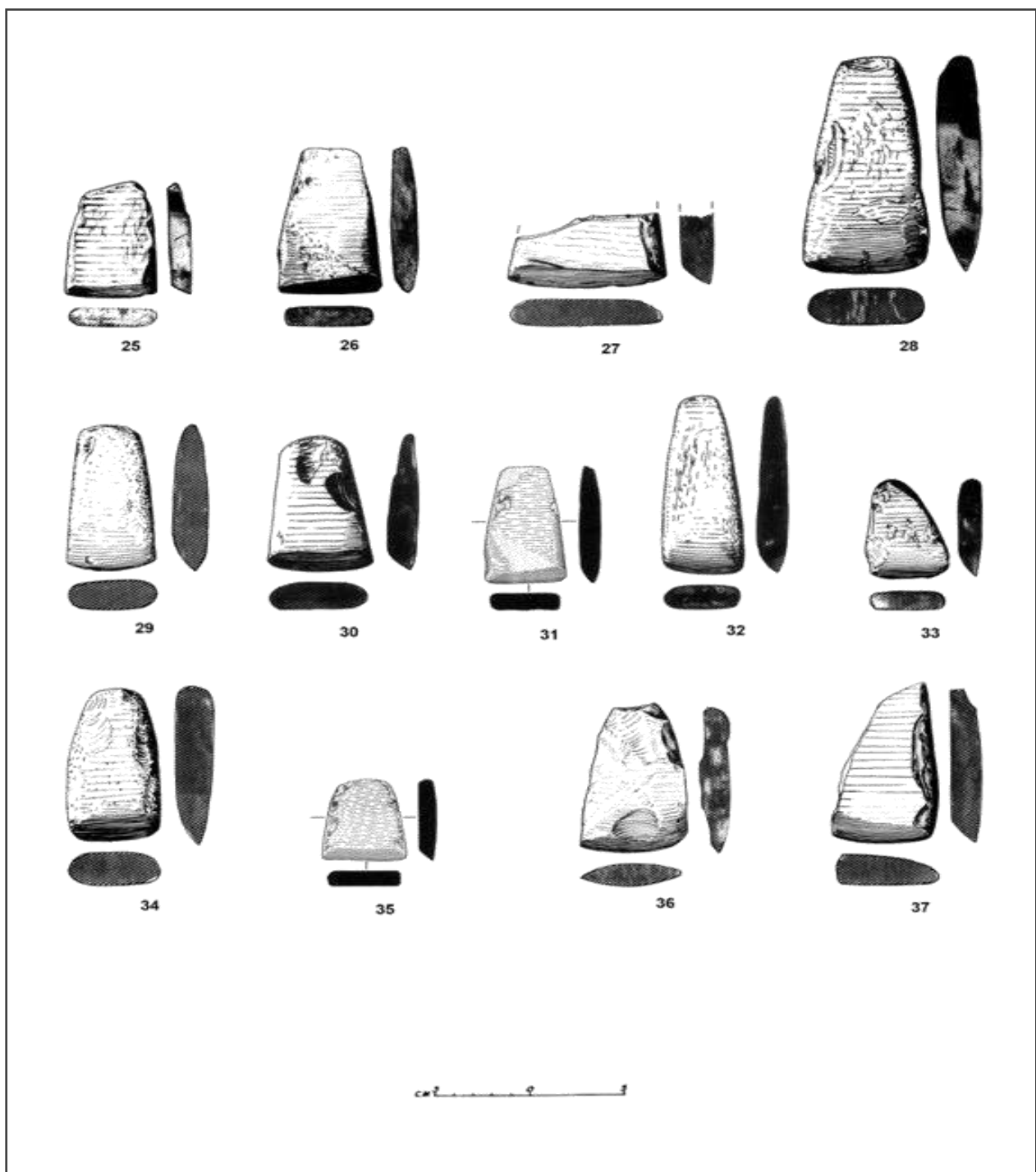


Fig.4.2.17 Adzes

L. CELTS / AXES

The Burzahom excavations have yielded 100 celts of varied types from different levels. Their typology is determined based on their form, formation of blade, butt, bevelling, transverse section, and such other features. The main factor helpful in determining their functional peculiarity is the marked obliqueness of blade at one end caused due to curved trajectory during use coupled with infliction of the angle blows, which make them lopsided. Even chipping, nicking or bruising of the blades due to use is generally confined to the portion within the central point of the lopsided end. This feature is also in adzes, wedges and chisels.

Another important feature is the pattern of bevelling. In case of axes bevelling is generally symmetrical as the slope is affected from the critical height on each face. This bevelling is well defined in forming some sort of a line terminating near working edge, where change in plane takes place in the manner of sharp tapering off to form the working edge, which is mostly sharp. In few cases the bevelling is poorly defined, as it is rounded and slopes off smoothly towards the working edge. In such cases line effecting the plane change is faintly visible, possibly due to reshaping and regrinding. It stands to reason that for maintaining the effectiveness of the tools, celts may have been reshaped and reground at various stages, altering their size functional peculiarities. Thus the identity of an axe, an adze or a chisel may change during its life span depending on its requirements for cutting harder or softer material or objects, and its user's proficiency in wielding it. Therefore, the nomenclature of the tool is based on its surviving form.

The butt of a celt is worked in different ways, usually hammered. In most cases it is rounded, but pointed and flattened square, tending to be square or rectangular, shapes are also found. Mostly a positive attempt has been made to chip off laterally or on the broader faces near the butt, thus making a pitted surface, perhaps for a firm grip. In case of pointed butts this feature is not well marked except in no. 8.

The axes are mostly large or medium sized suggesting their use as heavy duty tools. However, the smaller examples seem to be light duty tools, and may have been used in working softer material. The blades are relatively broad in medium sized thick axes compared to those of the larger ones. In the illustrated examples, the largest is no.1, measuring 195 mm long; and the smallest one is no. 29 measuring 102 mm in length; no. 12 is so far the widest, measuring 78 mm in width; no. 22 is the thickest with a thickness of 47 mm, and nos. 13 and 29 are the thinnest, measuring 20 mm in thickness.

The celts are quadrilateral, trapezoidal, rectangular, or triangular in form. The quadrilateral forms dominate while the triangular ones are limited. Viewed from the narrower side, vertically aligned with the operative edge, the body is generally thick and rounded, and in a few cases flat, and from the wider side, it is rounded, faceted, or partially faceted, among which the rounded one dominates.

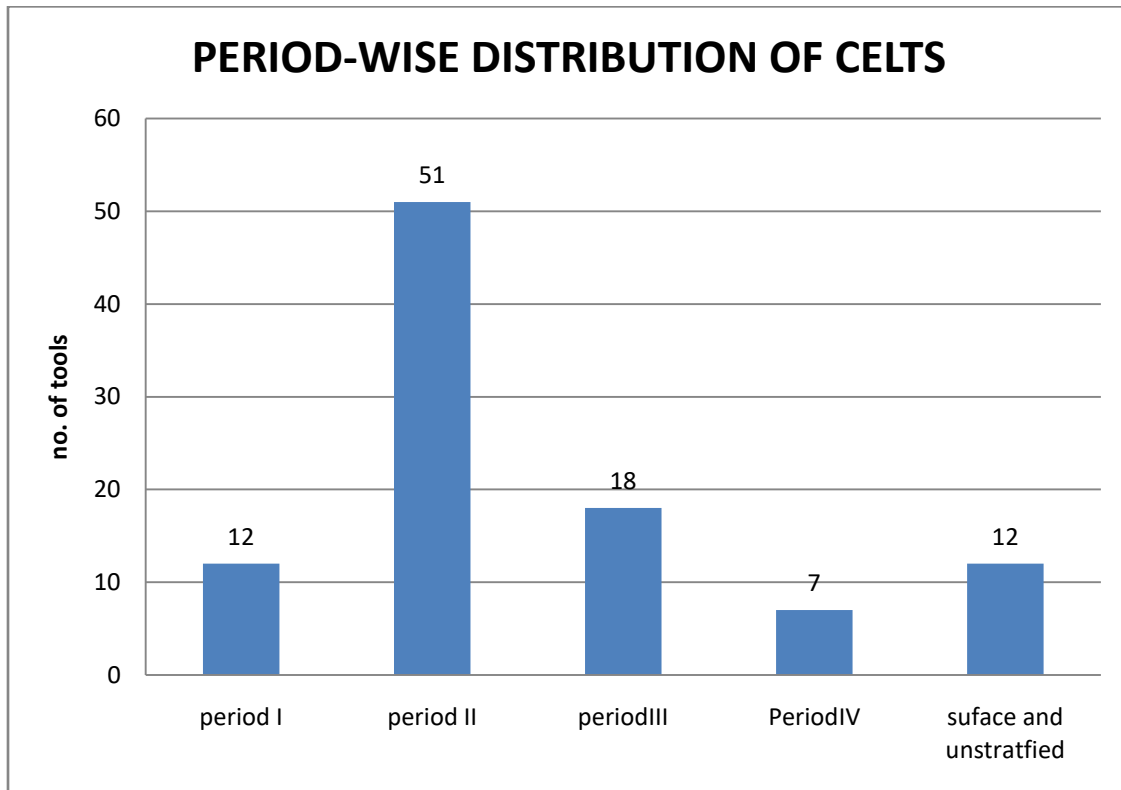
The surfaces are generally fully pecked and ground. In few cases pecking is not up to the mark, it is crudely done, or partially attempted. These are generally smooth, however, few partially pitted, scarred, or chipped off at a few points, are also found. In some cases minor encrustations are also noticed.

Glossiness is generally confined to the bevelled portion on both the faces. Lateral edges are generally non-glossy, although minor variations also occur. In no. 6 faces above the bevelled portion are partially glossy. In no. 32, barring butt and scarred portions, surfaces are glossy. In nos. 2 and 30, surfaces are partially glossy above the bevelled portion. In no. 10, one face is partially glossy apart from the bevelled portion. Only in few isolated cases faces are glossy below mid-point (e.g., no. 17). No. 15 is glossy all over including the lateral edges except for pitted and scarred portions. In no. 16, faces are fully glossy with the exception of the butt.

The transverse sections of the celts are varied. Specimens with an elliptical cross-section have the maximum presence. Fully oval sections are rare. However, there are a number of specimens with an oblong, oval to oblong transverse section. In a few cases the sections are rounded rectangular, or near circular.

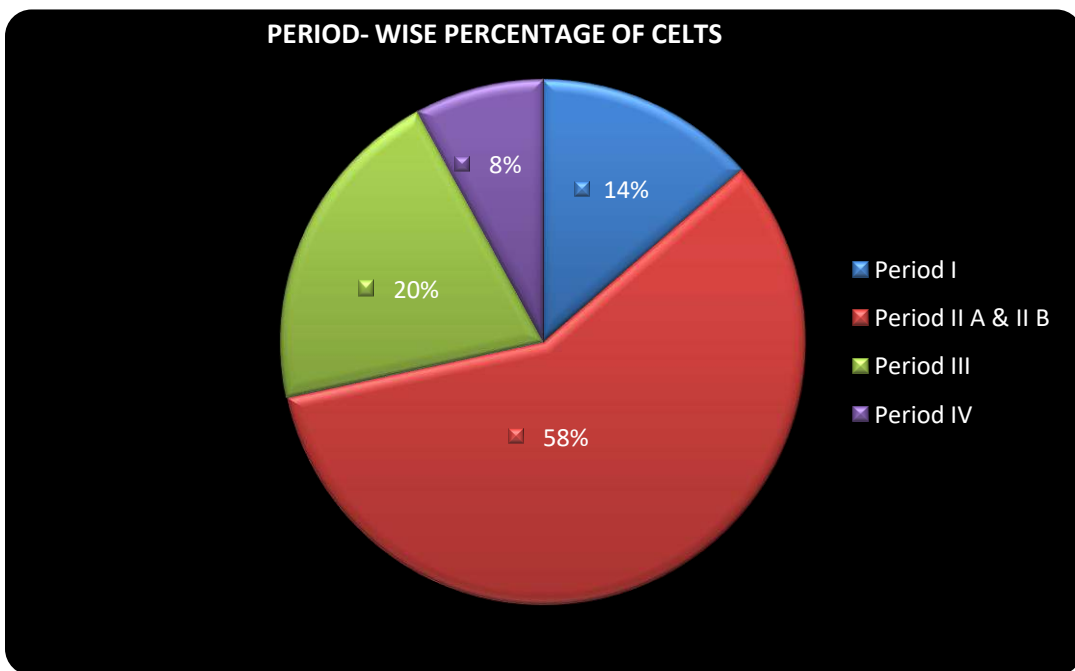
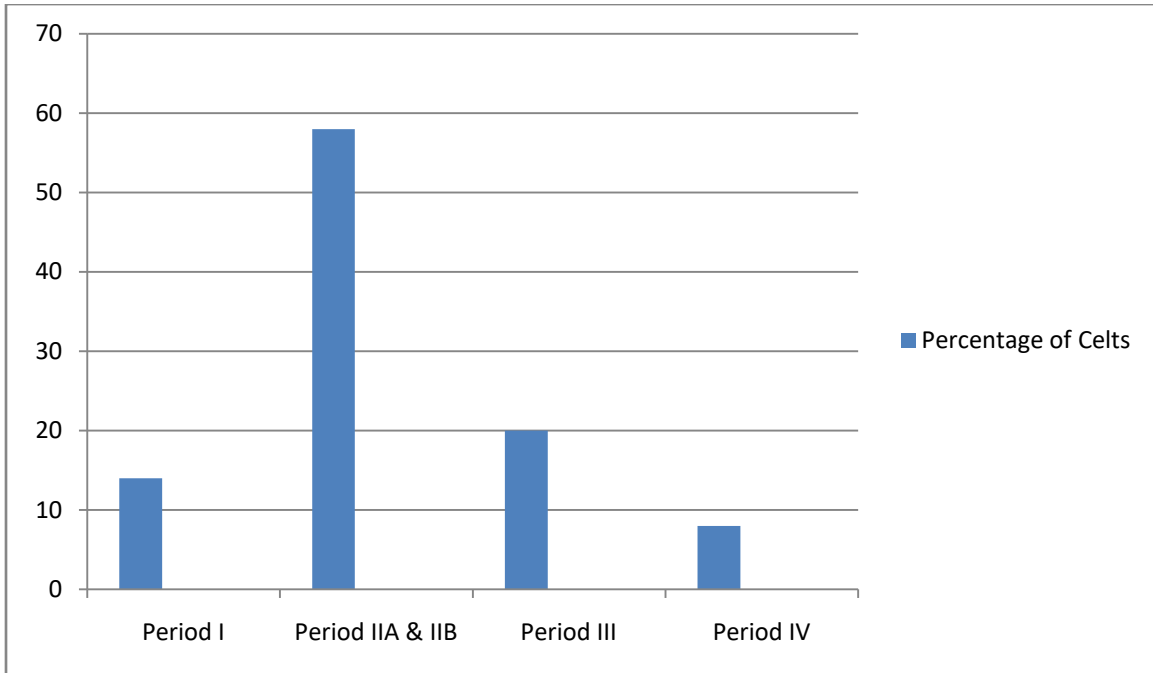
The period-wise distribution of celts is as follows:

Period I: 12, Period IIA & IIB: 51, Period III: 18, Period IV: 7, Un-stratified and Surface: 12.



Excluding specimens from un-stratified levels, the period-wise percentage works out as follows:

Period I: 14%, Period IIA & IIB: 58%, Period III: 20% and Period IV: 8%.



In the present report, 28 assorted examples have been illustrated (Fig. 4.2.18 nos. 1 to 6, Fig. 4.2.19 nos. 7 to 11, Fig. 4.2.20 nos. 12 to 16, Fig. 4.2.21 nos. 17 to 22, Fig. 4.2.22

nos. 23 to 28 and Fig. 4.2.23 nos. 29 to 32) excluding the specimens found from the Period IV (Historical). From the stratigraphical point of view, nos. 1 and 2 belong to Period I, nos. 3 - 13 from Period IIA, nos. 14 - 22 from Period IIB, nos. 23 - 24 from Period III and nos. 25 - 32 are from un-stratified levels or surface.

No. 1: Broad and hammered rounded butt, with a minor chip off on one face. Nearly straight sided. Surfaces are slightly rough for the upper 3/4th of the tool. Facetted sides, barrel-shaped cross section. Smooth symmetrical bevelling for the cutting edge, which is convex but slightly oblique at one end due to use. Working edge is slightly chipped off at few points on either face. Bevelled portion is glossy. Measurement: 195 mm x 65 mm x 43 mm. Period I

No. 2: Roughly rounded, broad, flattish butt with bruises mostly on one side. Partially smooth surfaces with a few scars and pits, facetted sides. Long body, trapezoidal in form, approaching elliptical is the cross section. Well defined symmetrical bevelling for the working edge, which is sharp and straight and rounded near the corners. The bevelled portion is glossy, and surfaces are partially glossy excepting the butt. Measurement: 180 mm x 67 mm x 41 mm. Period I

No. 3: Complete. Rounded butt with a minor chip off on one face only. Smooth surfaces, laterally rounded, elliptical cross section. Symmetrical bevelling for the cutting edge, which is slightly convex and asymmetrical in outline. Bevelled portion is glossy, and surfaces above it are partially glossy. Measurement: 110 mm x 45 mm x 28 mm. Period II A

No. 4: Complete. Butt is rounded and flat, slightly chipped below on one face, the other face has minor encrustations; otherwise surfaces are smooth, facetted sides, elliptical in cross section. Smooth symmetrical bevelling not so well defined for the cutting edge, which is nearly convex, narrow and oblique at one end. Only bevelled portion is glossy. Measurement: 152 mm x 47 mm x 32 mm. Period II A

No. 5: Round thick butt, hammered. One face is deeply pitted between mid-point and bevelled portion. Other face has minor scars from mid-point towards working edge, irregularly rounded in cross section, heavily pecked towards butt end. Asymmetrical and partially well defined bevelling for the working edge, which is convex and nicked at few points. Surfaces are glossy below mid-point. Measurement: 130 mm x 47 mm x 37 mm. Period II A

No. 6: Slightly damaged. Triangular in form, fully pecked and ground, long and thick body with a narrow blade and pointed butt. Smooth surfaces with a chip off below the

butt on one face, laterally rounded, approaching circular in cross section. Well defined bevelling for the working edge, which is narrow, nearly straight but markedly oblique at one end due to use, nicked at few points, glossy below the mid-point and partially glossy above it. Measurement: 172 mm x 50 mm x 42 mm. Period II A

No. 7: Round hammered butt. Surfaces are partially smooth, one face roughly pecked, laterally rounded, approaching quadrilateral in form, elliptical in cross section. Well defined symmetrical bevelling for the working edge, which is sharp and straight but markedly oblique at one end due to use. Bevelled portion is glossy. Measurement: 135 mm x 60 mm x 34 mm. Period II A

No. 8: Pointed butt, pitted just below, and few chips off laterally. Surfaces are partially glossy, rough, pitted and scarred with some encrustations on one face. Not fully ground, partially rounded sides, triangular in form, elliptical in cross section. Poorly defined bevelling for the working edge, which is blunt and bruised, nearly straight and markedly oblique at one end due to use. Measurement: 177 mm x 60 mm x 29 mm. Period II A

No. 9: Roughly rectangular, broad flattish butt. Smooth surface with few minor scars, faceted sides, broad blade and quadrilateral in form, oval to oblong in cross section. Well defined symmetrical bevelling for the slightly splayed out working edge, which is convex, marked oblique at one end, and nicked heavily due to use. Bevelled portion is glossy. Measurement: 130 mm x 72 mm x 38 mm. Period II A

No. 10: Roughly rounded and hammered broad flattish butt with a few bruises and pits all around. Smooth surfaces except for a few scars and chips off, laterally rounded, roughly pecked margins, thick body, quadrilateral in form, and oblong in cross section. Not so well defined symmetrical bevelling for the cutting edge, which is nearly straight but rounded near the corners, bruised, with few chips off on either face. Bevelled portion is relatively little glossy. Measurement: 152 mm x 72 mm x 39 mm. Period II A

No. 11: Somewhat oblique pointed butt. One surface is smooth, the other is roughly chipped. One lateral margin is somewhat faceted compared to the other one, which is crudely worked and rounded. Cross section is irregular, approaching rectangular but rounded towards one side. Well defined bevelling for the working edge, which is convex, nicked, bears few bruises, and oblique at one end due to use. Bevelled portion is glossy. Measurement: 135 mm x 50 mm x 22 mm. Period II A

No. 12: Broken towards butt end. Surfaces are smooth, except for minor encrustations on one face. Laterally rounded, approaching oblong in cross section, bruised at few

points. Well defined bevelling for the cutting edge, which is broad, sharp, rounded, and nicked at few points. Bevelled portion is glossy. Measurement: 78 mm x 32 mm. Period II A

No. 13: Double edged axe, solitary example of its kind. Surfaces are smooth, except for a few deep scars on one face. The lateral margins are slightly curved and roughly done. Bevelling is well defined for both working edges. The narrower blade is convex and sharp, the broader one is nearly straight, slightly rounded near the corners, and bruised at few points. Faces are fully glossy. The tool is narrower in the central portion and broader at outer ends. Measurement: 137 mm x 45 mm x 20 mm. Period II A

No. 14: Roughly hammered butt, rather oblique, with minor chips off on either face. Facetted to rounded sides properly pecked and ground faces, oval in cross section. Not so well defined smooth symmetrical bevelling for the cutting edge which is damaged. It is apparent that the curved trajectory during use has affected the working edge heavily at one end, making it markedly lopsided. Bevelled portion, partially chipped off on both the faces, is glossy. Measurement: 155 mm x 57 mm x 35 mm. Period II B

No. 15: Roughly round hammered butt with deep indentations just below on one face, rest glossy. The other face is scarred at few points, quadrilateral in form, in cross section approaching elliptical. Well defined asymmetrical bevelling for working edge, which is convex, and nicked. Bevelled portion is chipped off on one face. It is one of the few tools which are glossy all over except for the pitted and scarred portions. Measurement: 135 mm x 60 mm x 35 mm. Period II B

No. 16: Butt damaged. Lateral chipping on the butt for hafting. Surfaces nicely ground, faces smooth and mostly glossy, facetted to rounded sides, relatively thick body. Almost triangular in form and elliptical to rounded in cross section. Well defined symmetrical bevelling for the working edge, which is convex, glossy, markedly oblique at one end, and nicked due to use. Measurement: 150 mm x 50 mm x 35 mm. Period II B

No. 17: Round hammered butt, nicely shaped thick body with smooth surfaces except for a few chips off near the working edge on both faces, laterally rounded, elliptical to round in cross section. Well defined symmetrical bevelling for the working edge, which is broad and convex, nicked and a few chips off, glossy below mid-point except for lateral margins. Measurement: 122 mm x 60 mm x 38 mm. Period II B

No. 18: Flat, hammered butt, nicely pecked, smooth surfaces except for minor scars and encrustations on one face. Facetted sides, nearly straight sided, trapezoidal in form, nearly elliptical in cross section. Asymmetrical smooth bevelling for the working edge,

which is narrow and sharp, nearly straight but oblique at one end due to use, bevelled portion fully glossy on the encrusted face, and just glossy near the working edge on the other face. Other portions are non-glossy. Measurement: 165 mm x 55 mm x 34 mm. Period II B

No. 19: Small axe, round, hammered and flattish butt, laterally rounded, elliptical in cross section. Well defined symmetrical bevelling for the working edge which is convex, marked oblique at one end. One face is glossy below mid-point, and only the bevelled portion is glossy on the other face, which also bears some encrustations. Smooth surfaces. Measurement: 112 mm x 52 mm x 34 mm. Period II B

No. 20: Small axe, round butt. Smooth surfaces, laterally rounded, quadrilateral in form, elliptical in cross section. Well defined asymmetrical bevelling for the working edge, which is straight, nicked, and slightly oblique at one end. The bevelled portion is glossy. Measurement: 102 mm x 42 mm x 19 mm. Period II B

No. 21: Broad, somewhat rounded butt with few chips off on one face just below. Partially smooth surfaces, flat faces, faceted sides rather roughly pecked. Quadrilateral in form, rounded rectangular in cross section. Well defined symmetrical bevelling for the cutting edge, which is straight but rounded near the corners and badly bruised especially on one face in the central portion. The bevelled portion is glossy. It is one of the few celts with flat faces. Measurement: 142 mm x 75 mm x 31 mm. Period II B

No. 22: Obliquely rounded hammered butt with few chips off on one face. Smooth surfaces except for few scars, heavily pecked. Long and broad body, straight sided, laterally rounded, trapezoidal in form, oblong in cross section. Well defined symmetrical bevelling for the cutting edge, which is convex, bruised in the central portion, and markedly oblique at one end due to use. Only lower portion of the bevelled area is glossy. It is the heaviest and nearly the broadest axe in the Burzahom collection. Measurement: 182 mm x 75 mm x 47 mm. Period II B

No. 23: Medium sized axe, somewhat rounded hammered butt. Smooth surfaces except for minor scars and encrustations. Quadrilateral in form, faceted sides and thick body compared to its size, nearly elliptical cross section. Well defined symmetrical bevelling for the cutting edge, which is sharp, convex, but oblique at one end due to use, and nicked at few points. The bevelled portion is glossy. Measurement: 132 mm x 55 mm x 37 mm. Period III

No. 24: Thick, tending to square butt crudely worked and laterally chipped up to mid-point. Surfaces are mostly rough and pitted up to the bevelled portion, which is glossy

and rounded rectangular in cross section. Working edge is straight but rounded near the corners, and heavily nicked due to use. The bevelled portion has few chips off. Measurement: 122 mm x 57 mm x 32 mm. Period III

No. 25: Complete, symmetrically shaped small axe, fully ground, rounded flattish hammered butt with minor chips off. Laterally rounded, relatively thick compared to its size, quadrilateral in form, elliptical in cross section. Symmetrically bevelled for the cutting edge, which is convex and oblique at one end. The cutting edge is nicked at few points. The bevelled portion is faintly glossy. Measurement: 135 mm x 50 mm x 36 mm. Surface

No. 26: Long and nearly straight sided axe with a somewhat narrow blade. Rounded flattish butt slightly chipped just below on one face. Smooth faces, faceted sides, elliptical in cross section. Smooth symmetrical bevelling in the lower part for the cutting edge, which is somewhat rounded and markedly oblique and slightly bruised at one end owing to use. Only the bevelled portion is glossy. Measurement: 190 mm x 52 mm x 37 mm. Surface

No. 27: Small axe, flat and rounded butt. Nicely ground. Surfaces are smooth and glossy, elliptical in cross section. Not so well defined smooth symmetrical bevelling for the cutting edge, which is rather blunt and nicked. Measurement: 122 mm x 42 mm x 22 mm. Surface

No. 28: Long axe, roughly hammered flat butt, with chips off on both the faces. Surfaces are rather rough, pitted at few places, laterally rounded, straight sided and thick. Trapezoidal in form, somewhat rounded rectangular in cross section. Well defined bevelling for the cutting edge, which is nearly straight but rounded near the corners, oblique at one end due to use. Working edge and partially the bevelled portion are chipped off due to use. Measurement: 162 mm x 50 mm x 37 mm. Surface

No. 29: Small axe. Flattish butt, roughly rectangular in form, surfaces are partially rough, not properly ground, showing poor workmanship. One face is slightly pitted. Cross section is irregular. Asymmetrical bevelling for the working edge, which, slightly oblique at one end, is straight and nicked. The bevelled portion is glossy, and suggests that the tool may have been used as an adze also for the light work. Measurement: 102 mm x 35 mm x 20 mm. Surface

No. 30: Irregularly rounded and hammered broad butt, chipped off at few points. Partially smooth faces with scars and pits. Crudely worked, rounded laterally. Nearly straight sided, trapezoidal in form, and elliptical in cross section. Well defined

asymmetrical bevelling for the working edge. The bevelled portion is glossy, with a deep scar on one face. The working edge is convex and markedly oblique with few chips off at one end due to use. Surfaces are partially glossy above the bevelled portion. Measurement: 147 mm x 55 mm x 38 mm. Surface

No. 31: Broad, round, hammered, well shaped butt. Partially smooth surfaces with few scars, pits, and chips off, faceted sides. Blade is nicked due to use and thus blunt. Quadrilateral in form, approaching rounded rectangular in cross section. Well defined symmetrical bevelling for the working edge, which is convex and damaged at one end. Surfaces are glossy towards operative part. Measurement: 147 mm x 62 mm x 38 mm. Surface

No. 32: Thick, round hammered butt with few pits on one face. Partially smooth surfaces with deep scars, laterally rounded, thick body. Surfaces are glossy and approaching circular in cross section. Not so well defined symmetrical bevelling for the working edge, which is sharp and convex, markedly oblique at one end with a cut, and nicked at few points. Measurement: 157 mm x 60 mm x 44 mm. Surface

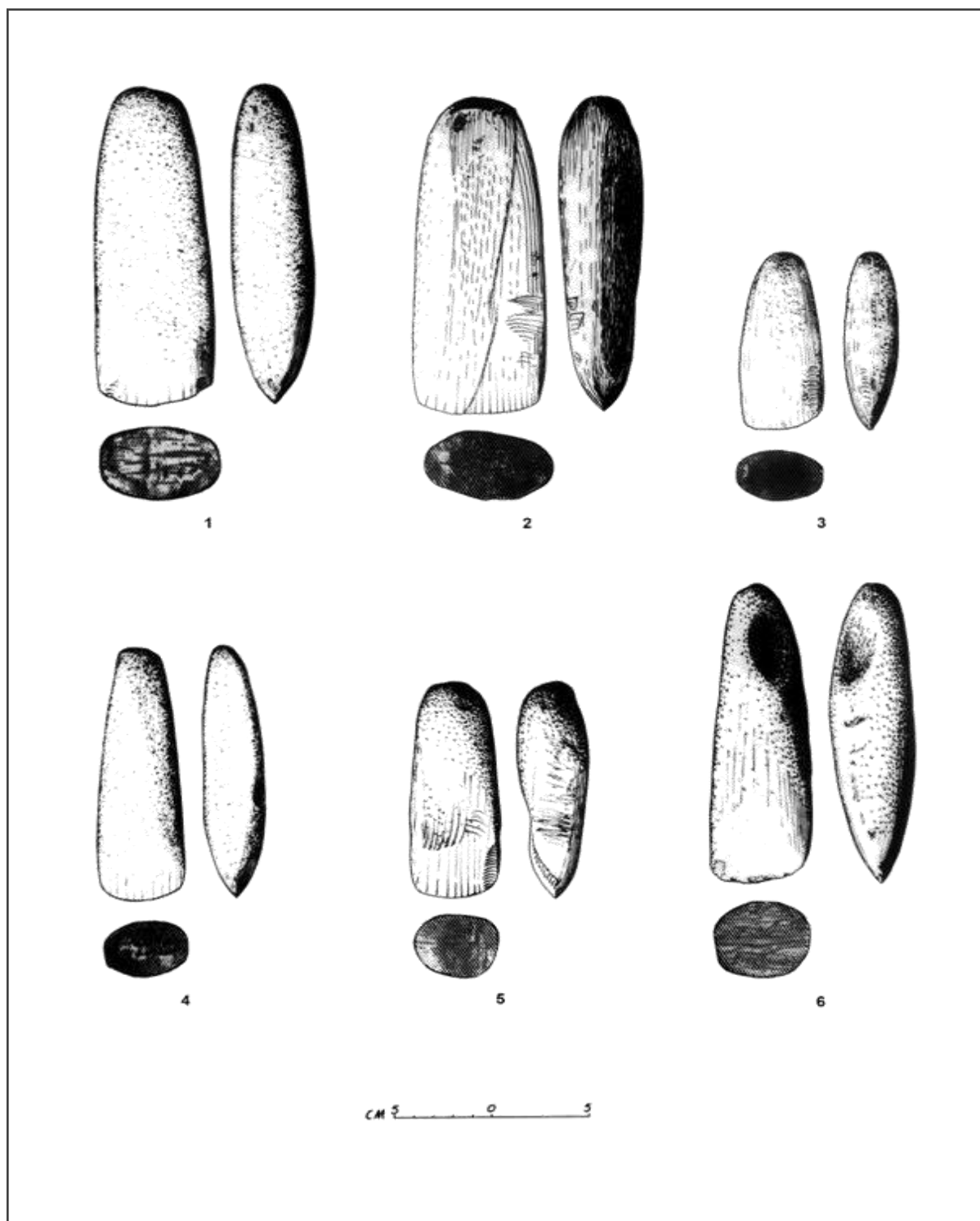


Fig.4.2.18 Celts/Axes

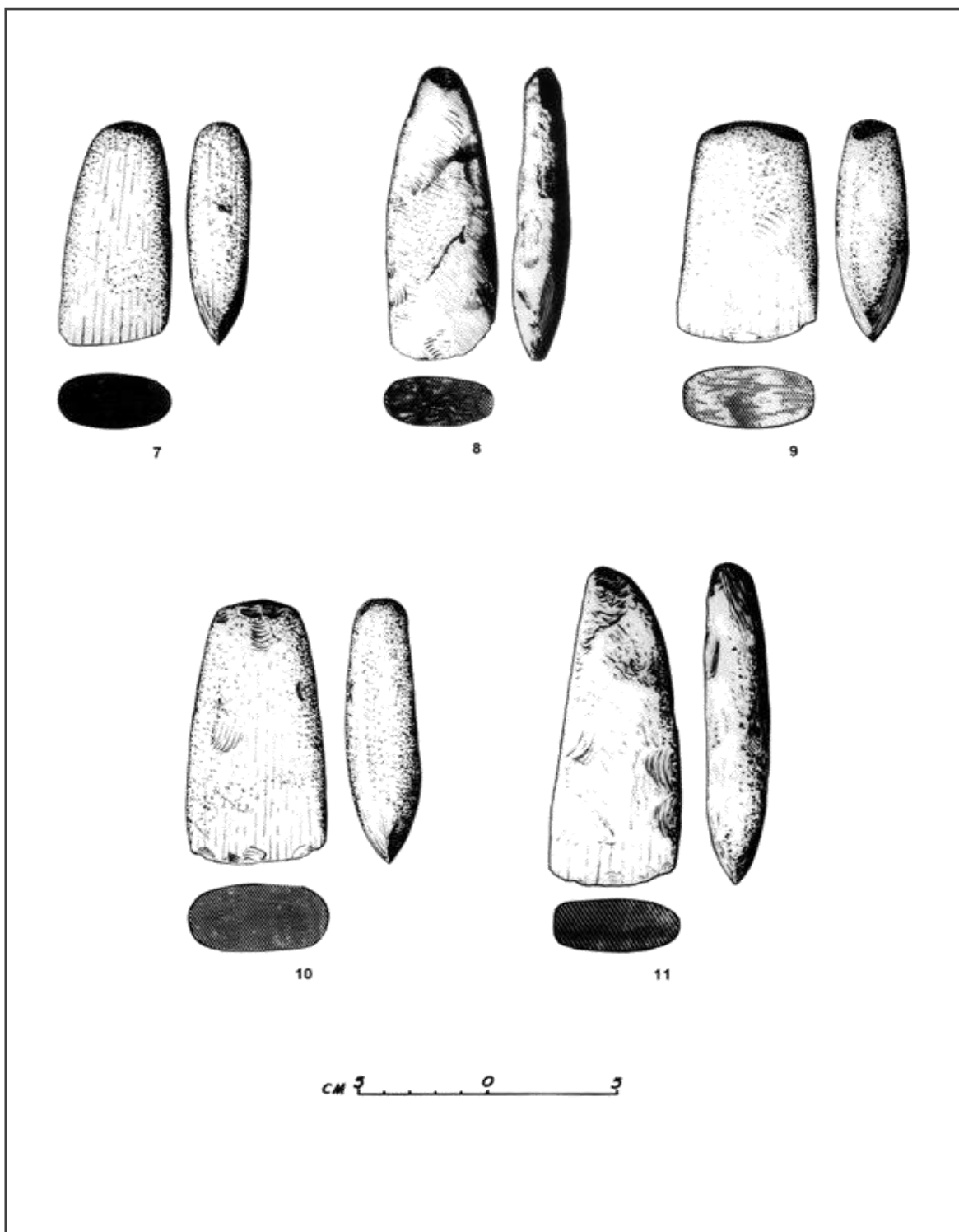


Fig.4.2.19 Celts/Axes

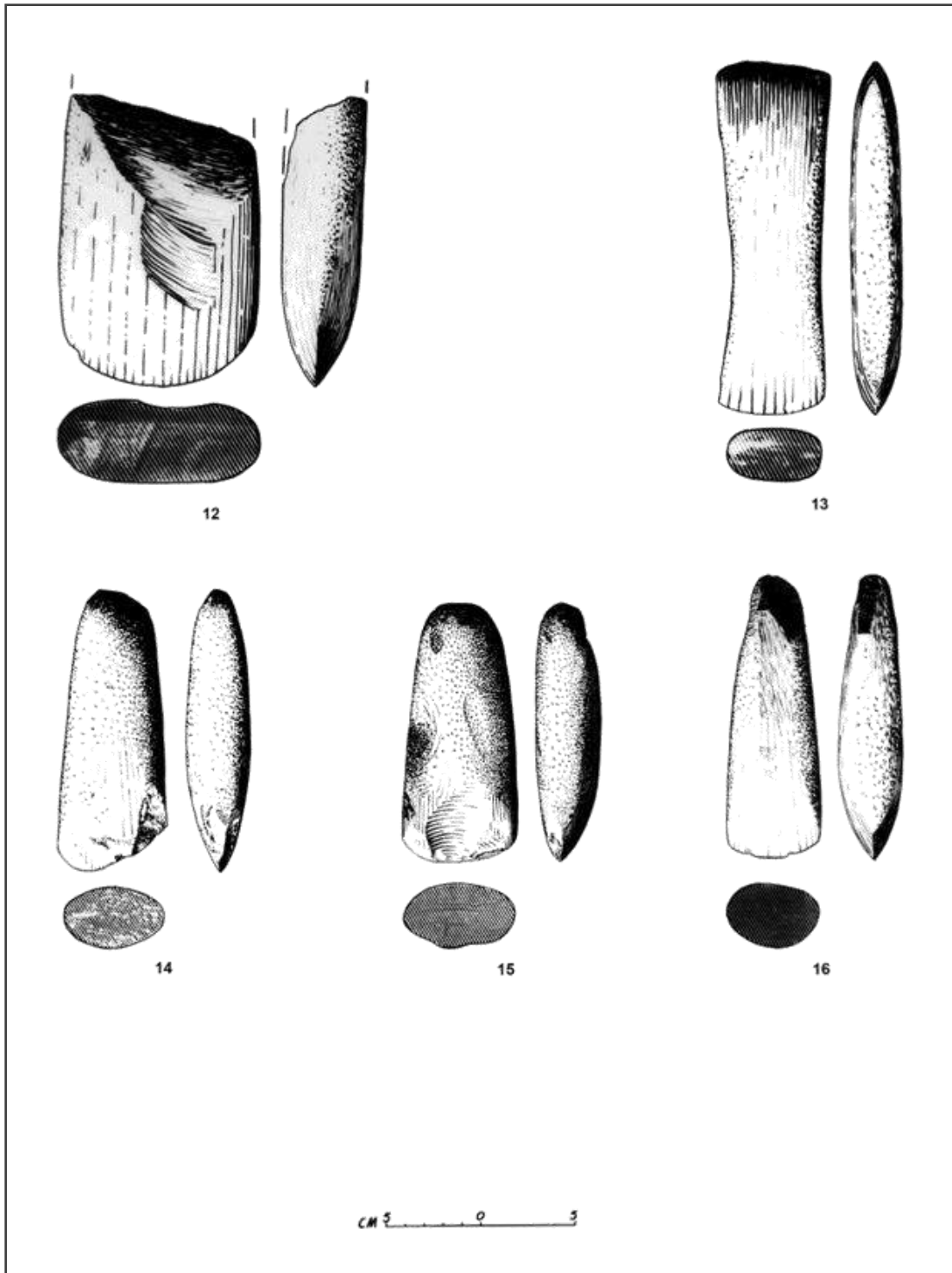


Fig.4.2.20 Celts/Axes

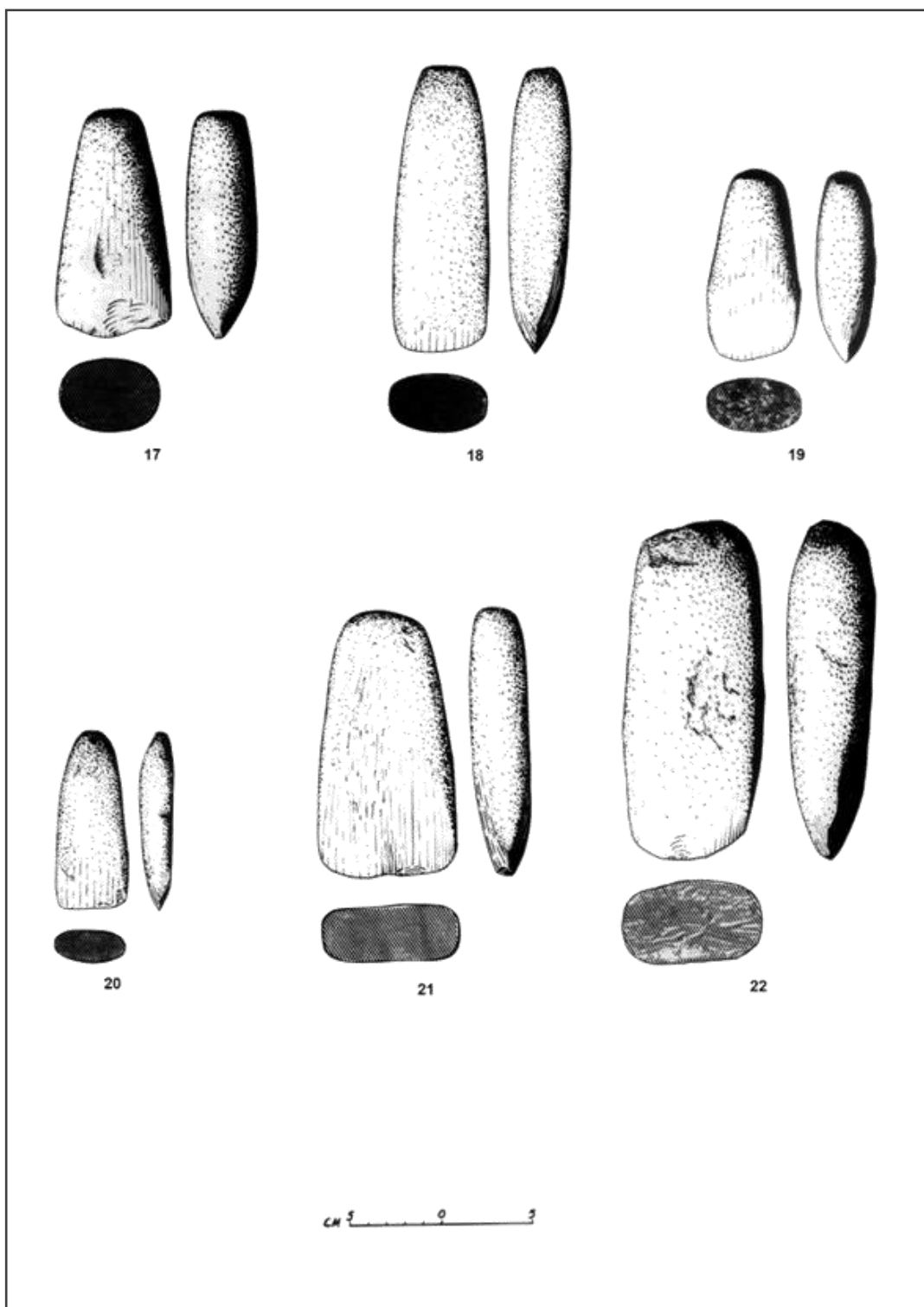


Fig.4.2.21 Celts/Axes

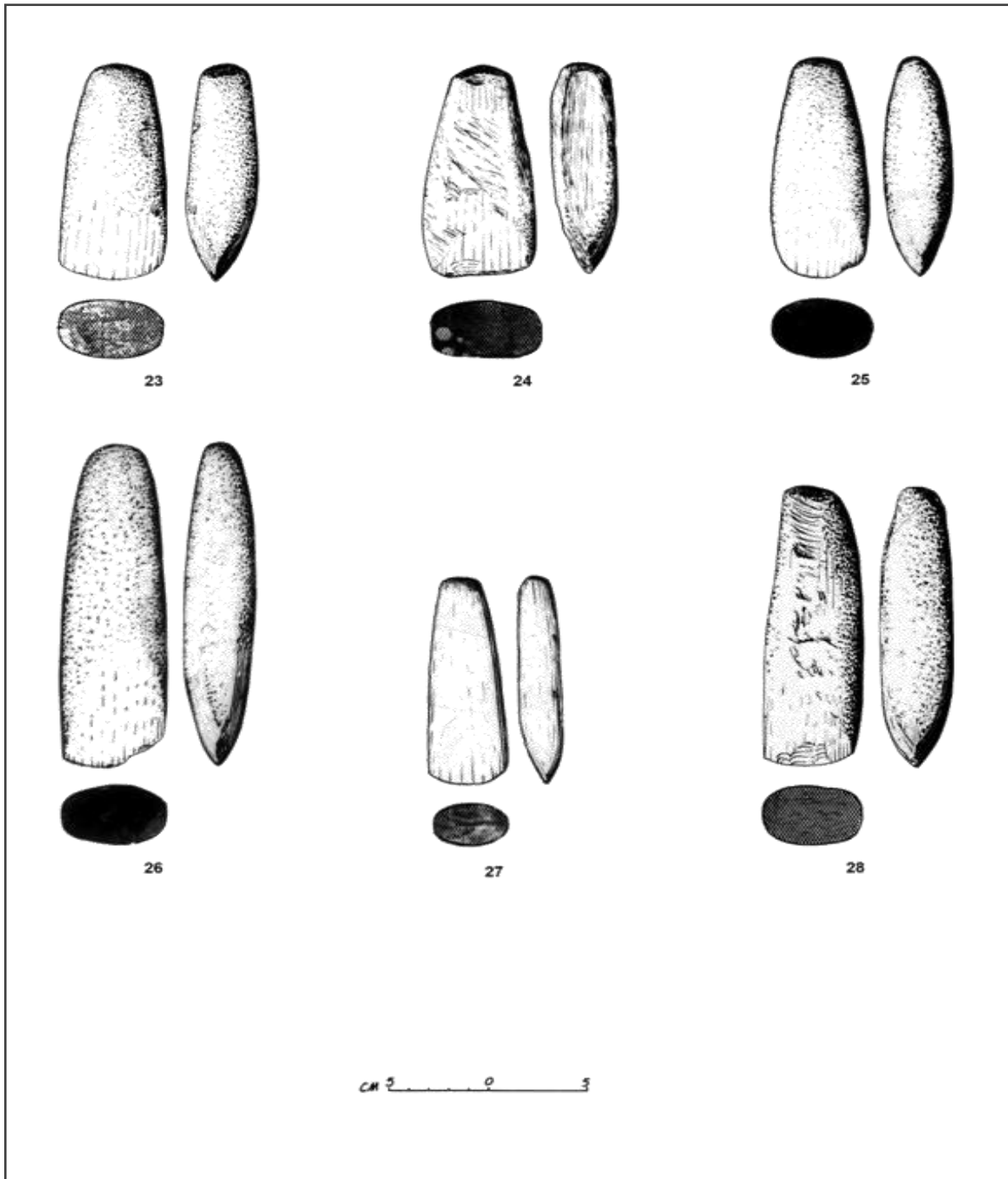


Fig.4.2.22 Celts/Axes

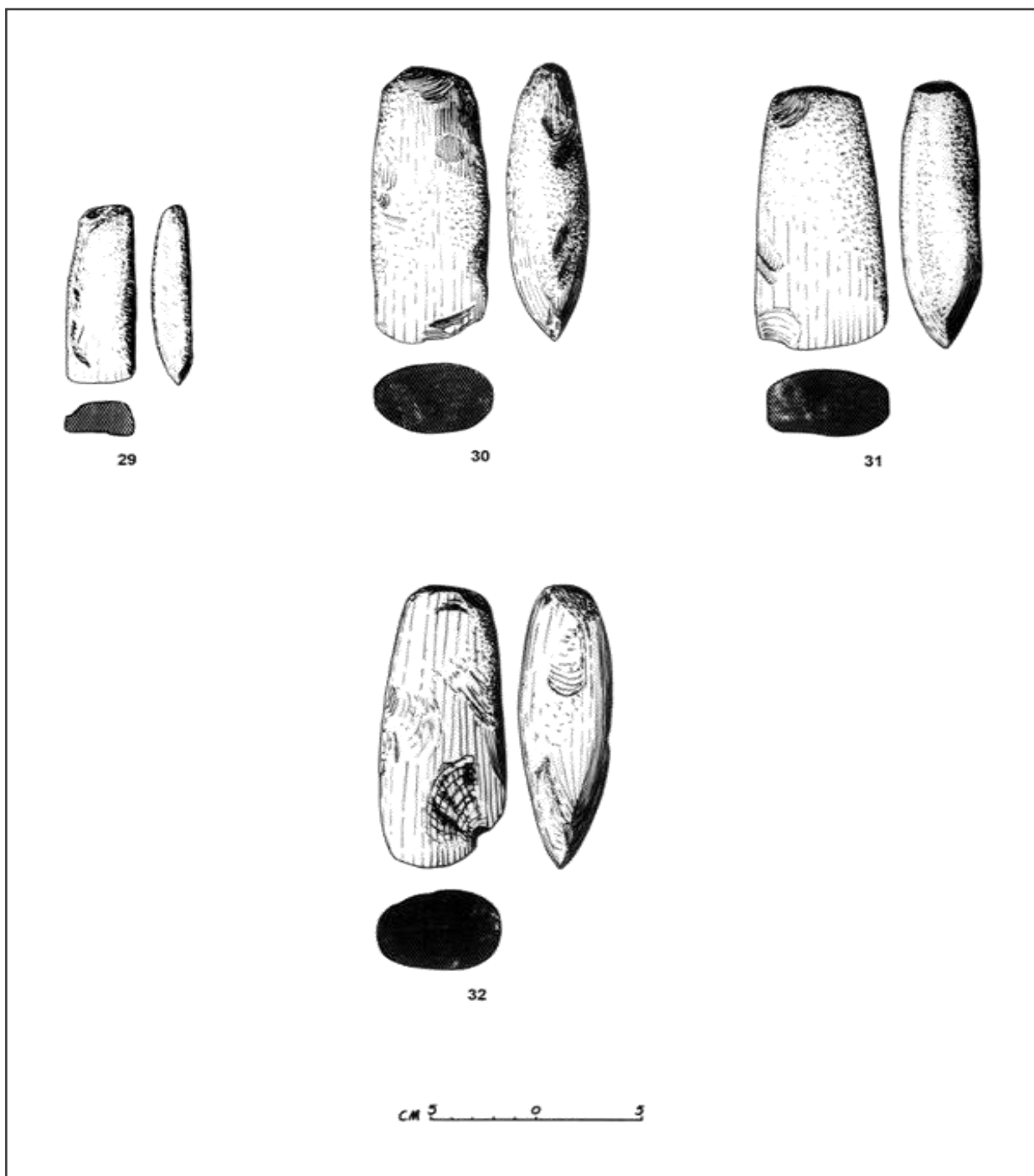
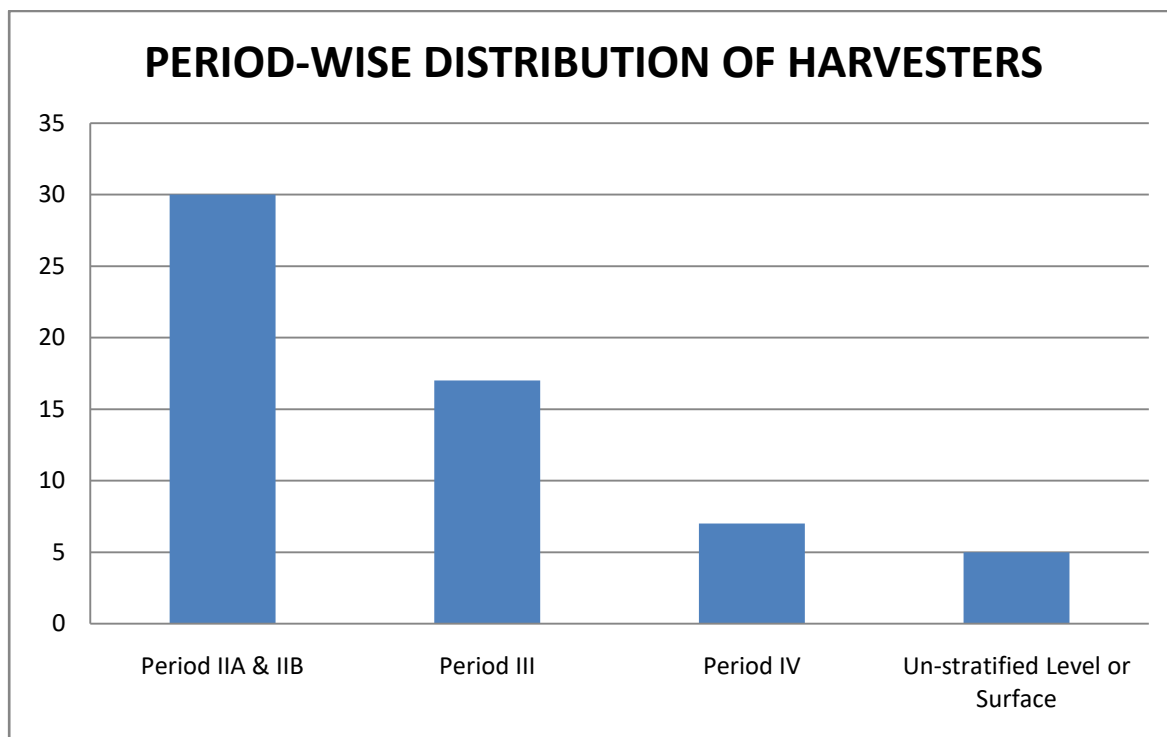


Fig.4.2.23 Celts/Axes

M. HARVESTERS OR PERFORATED KNIVES

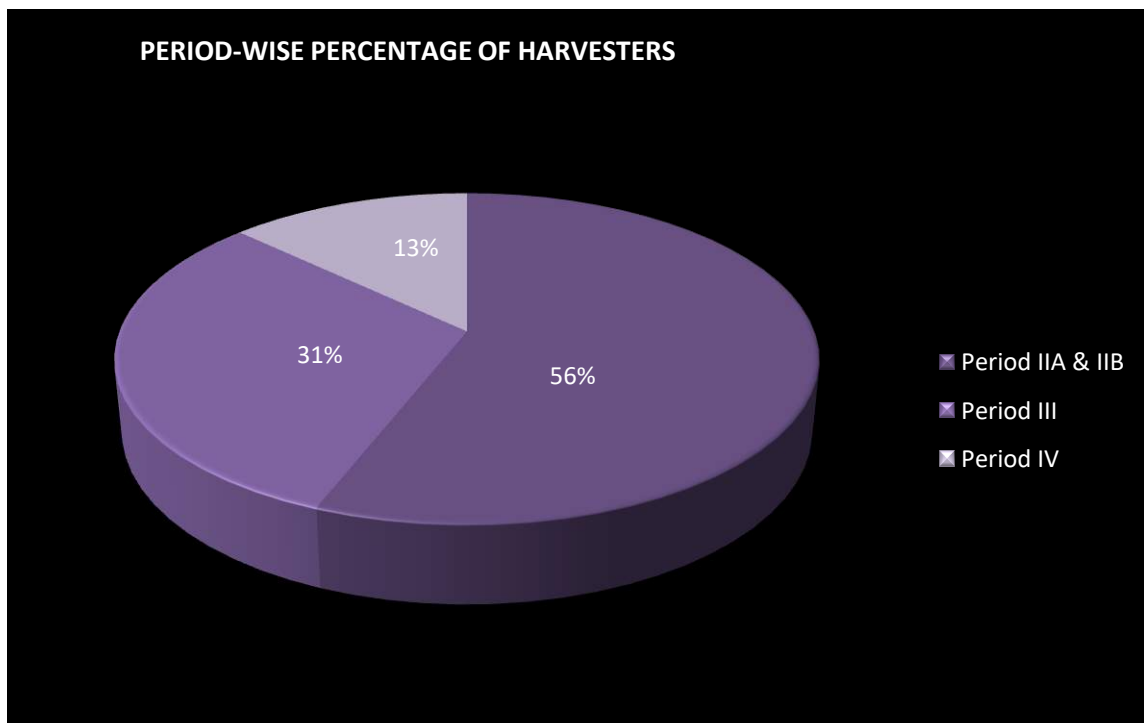
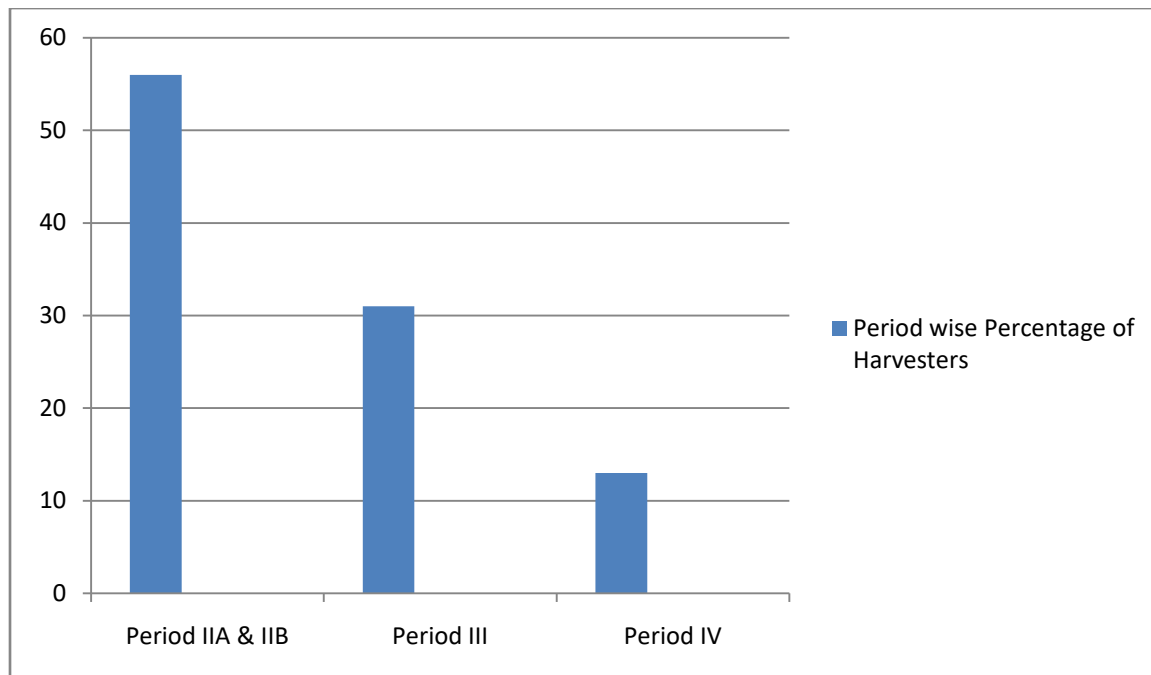
The Burzahom collection has 57 perforated distinctive stone tools, including broken and unfinished ones, identified as harvesters or perforated knives. There are two specimens in bone which take the total to 59. Of the said tools, 21 artefacts have been illustrated (Fig. 4.2.24). Significantly, not a single tool of this type has been found in the Aceramic Neolithic Period I. The maximum specimens are from the Neolithic Period IIA & IIB. This is noteworthy, especially when the tool is said to have been meant for agricultural operations. The period-wise break up of these tools is as follows:

Period IIA & IIB: 30 (including two bone tools), Period III (Megalithic) - 17, Period IV (Historical) - 7 and Un-stratified Level and Surface - 5.



Exclusive of the specimens from un-stratified levels, the period-wise percentage works out as follows:

Period IIA & IIB - 56%, Period III - 31%, Period IV- 13%.



The typological classification of these tools is broadly based on their forms and number or pattern of perforations. There are four specimens with a single perforation, thirty-one specimens with double perforations and only one specimen with three perforations. Broadly speaking, in form, they are fully rectangular, rectangular with minor convexity in the cutting edge, lunette and quadrilateral or trapezoidal, a few odd shapes cannot be rendered geometrically. The rectangular types with minor convexity in the cutting edge, as also specimens with perforation made through both the faces, hence hourglass like, have the maximum incidence. Their surfaces are smooth, partially smooth with a few scars and encrustations, rough or pitted. Specimens with smooth or partially smooth surfaces dominate. Their sizes vary and thickness is not uniform. These tools are generally thicker in the central portion, edges being thinner, except in a few cases. Their thickness varies between 4 mm and 14 mm, normal thickness being 8 mm. Width also varies between 35 mm and 56 mm. The cutting edge is generally thin and sharp, effected by symmetrical bevelling, which may be marginal or properly done. Few examples are markedly or marginally bevelled near the operative part on one face only. The cutting edge is generally convex, in a few cases straight or straight with corners rounded. In most of the specimens, the cutting edge is fully or partially nicked due to use. In a few examples the cutting edge is rather blunt. These tools have been fashioned mostly by chipping and grinding.

The perforations are in the central portion just below the non-cutting edge, normally equi-distantly placed from the lateral edges. The holes have been pierced from both the faces apparently with a sharp pointed instrument. There is wide variation between their outer and inner diameters, minimum inner diameter is between 2 mm and 6 mm, and the one between 6 mm and maximum 10 mm, common one being 4/7 mm. In case of tools having two or more perforations, these are evenly placed in the central portion just below the non-cutting edge, except in specimen No. 6 where it is widely spaced, and in case of No. 19 there are three unevenly spaced perforations. In case of Nos. 12 and 20, perforations are in close proximity to each other. It has also been suggested that these objects may have been utilized for ornamental purposes, especially as bracelets. Their hourglass like perforations and thin and sharp cutting edges indicate that these objects may have been effectively used as harvesters. It does not stand to reason that sharp cutting edges achieved by symmetrical bevelling on either face would have served the purpose of ornamentation, rather it causes disadvantage to its wearer. The perforations would have proved useful fastening it with a strap, thus assuring a

firmer grip for harvesting. Such like artefacts have also been found in Sikkim and North-Eastern India (IAR 1980-81: 64) .

In Chinese Neolithic sites similar tools have been found in abundance and these are reported to have been used for harvesting (Thapar 1985: 36) which lends support to the identification of the Burzahom tools with harvesters. In this connection it may be observed that microscopic examination of the hourglass like holes has revealed that the original striations formed during boring with a pointed tool have faded at a particular position, most probably where the thread was in close contact within the hole when tied to the hand. Regarding the wear striations on the working edge, these are rather faint and run parallel to it, but these have bunched up mostly with the manufacturing marks, as such do not present a clear picture. Interestingly, some of the tools under reference depict linear markings or small circular depressions either on both faces (Nos. 8 and 17) or on one only (Nos. 9 and 14). Among the illustrated specimens, : Nos. 1, 2, 3, 4, 5, 6, 7, 8 and 9 are from the various levels of Period IIA & IIB, Nos. 10, 11, 12, 13, 14, 15 are from Period III, Nos. 16, 17, 18 and 19 are from Period IV, Nos. 20 and 21 are from the Un-stratified Level and Surface.

From the stratigraphical point of view the distribution of the illustrated specimens are described as below:

No. 1: Roughly semi-circular in form with a single perforation pierced from both the sides near the centre just below the non-cutting edge, hence hourglass like in transverse section. Outer diameter of the hole is 6 mm, and inner one 4 mm. Surfaces are partially smooth, one face being slightly scarred. There are no traces of glossiness. Grinding is poor on one face. Cutting edge is convex, sharp, and secured by bevelling and nicked due to use. It is one of the thinnest specimens. Measurement: 80 mm x 40 mm x 4 mm. Period II

No. 2: Lunette in form with a single perforation pierced from both the sides near the centre, 8 mm below the non-cutting edge. Outer diameter of perforation is irregular, and inner one 6 mm. Surfaces are rather rough and working edge is convex, partially sharp, secured by minor bevelling and nicked due to use. Measurement: 95 mm x 42 mm x 6 mm. Period II

No. 3: Broken, rectangular in form with two perforations just below the non-cutting edge properly pierced from both the sides, being 22 mm apart from each other. Both the perforations are nearly similar and equi-distant from lateral edges, their inner diameter being about 5 mm, and outer one about 8 mm. Its surfaces are fairly smooth and slightly glossy, workmanship is good. Working edge, secured by bevelling, is

straight and sharp, and nicked at few points. Measurement: 102 mm x 48 mm x 9 mm. Period II

No. 4: Broken, size and form suggest that it has broken nearly at the centre, apparently the largest specimen of its kind. Only one perforation, that too with a break, is intact. Surfaces are smooth. Cutting edge secured by symmetrical bevelling is sharp and thin, nicked at few points. Grinding **striae** are permanent. Extant dimensions measure 138 mm x 55 mm x 8 mm. In its fully intact form it may have been 219 mm x 55 mm x 8 mm (if the tool bears only one perforation in its original form, this measurement does not hold). Period II

No. 5: Complete, with two perforations just below the non-cutting edge which is concave. Outer diameter of the hole is 8 mm, inner one being 4 mm. Surface are smooth except for minor encrustations on one face. Working edge secured by bevelling is slightly out-curved, rather blunt and mostly nicked. Measurement: 99 mm x 51 mm x 8 mm. Period II

No. 6: Complete except for a break in the central portion of the working edge. Irregular in form with two perforations awkwardly placed 67 mm apart from each other close to the lateral edges. Perforations are disproportionate, their outer diameter varying from 6 mm to 8 mm, inner between 2.5 mm and 3 mm. Surfaces are rough, pitted and scarred, non-cutting edge being pretty thick. Central portion of the rather blunt working edge, which seems to have been straight, has broken, hence extant form looks like kidney-shaped, The cutting edge indicates marginal beveling only and is rather blunt. . Measurement: 88 mm x 33 mm x 14 mm. Period II

No. 7: Complete. Broadly lunette in form with obliquely truncated corners. There are two perforations, 30 mm apart from each other, just below the central portion of non-cutting edge with minor variations in proportions of the holes. Thus, outer diameter varies between 6 mm and 7 mm, and inner one between 2 mm and 2.5 mm. Surfaces are smooth and nicely ground. There is some minor scratching. Working edge, nicely affected by symmetrical bevelling, is convex, thin, sharp, and nicked at few points/places. Measurement: 132 mm x 48 mm x 9 mm. Period II

No. 8: Complete, but one of the lateral edges is slightly damaged. Broadly rectangular in form with two perforations, 38 mm apart from each other, below the non-cutting edge, and approximately equi-distant from lateral edges. Perforations have an inner diameter of 4 mm, outer one varies between 7 and 9 mm. Surfaces are smooth with some scratching. Working edge secured by bevelling is nearly straight but rounded near the corners, and partially glossy. It also bears two circular depressions on each

face, placed 35 mm apart from each other, position of the depressions being different on each face. Measurement: 105 mm x 38mm x 7 mm. Period II

No. 9: Slightly winged and curved irregular form with two perforations, 34 mm apart from each other. Perforations are uniform, equidistant from lateral edges just below the non-cutting concave edge. Their inner diameter is 3 mm, outer one 6 mm. Surfaces are smooth. Close to one of the perforations a circular depression has also been made. Working edge, secured by bevelling, is convex, rather blunt and nicked at few points. Measurement: 97 mm x 47 mm x 8 mm. Period II

No. 10: Broadly rectangular in form, slightly winged on one side, with a single hole crudely pierced from both the faces nearly in the centre just below non-cutting edge. Surfaces are smooth and glossy except for minor scars. Grinding **striae** are prominent. Outer diameter of the perforation is 8 mm, inner one 4 mm, this difference is rather abnormal. There are four deeply incised lines radiating from non-cutting edge on one face, apparently non-functional. One of the lateral edges is slightly damaged. The cutting edge, entirely nicked due to use, is slightly convex, partially sharp and has been secured by minor symmetrical bevelling. Measurement: 83mm x 33mm x 8 mm. Period III

No. 11: Broadly pentagonal in form with a single perforation pierced from both the sides. Its inner diameter is 4mm, outer one about 10mm, indeed an abnormally wide variation. Surfaces are rough, encrusted, and slightly chipped near lateral margins. Workmanship is poor. Cutting edge has been properly executed, smooth, nearly sharp and straight but rounded in corners. It has been secured by bevelling. It is slightly nicked due to use near the corners. Measurement: 99 mm x 51 mm x 15 mm. Period III

No. 12: Broadly rectangular in form. There are two closely spaced perforations nearly in the centre of the non-cutting edge, pierced from both the faces. There is wide variation in the outer diameter of the perforations on both the faces, however, the inner one in both the cases being about 4 mm. Its surfaces are smooth with a few bruises and minor scars. Enough grinding is in evidence. Working edge, secured by marginal bevelling, is straight, slightly blunt and nicked due to use. Measurement: 98 mm x 31 mm x 7 mm. Period III

No. 13: Broadly rectangular in form with two perforations, 23 mm apart from each other, nearly equidistant from either lateral edge just below the non-cutting edge. Perforations are nearly similar in proportions, inner diameter is 3 mm, and outer one 6 mm. Surfaces are smooth. Working edge secured by bevelling is nearly straight and

sharp, nicked at few points. It bears linear incisions on both the faces, forming a sort of a pair of mirror-reflected oblique lines, somewhat like a chevron pattern. The cutting edge secured by bevelling is not fully straight and is considerably sharp. Measurement: 130 mm x 41 mm x 8 mm. Period III

No. 14: Complete except for some minor breaks, broadly rounded rectangular in form with two perforations, nearly equidistant from lateral edges, just below the non-cutting edge. Perforations are 21mm apart from each other, their inner diameter measures 4 mm, and outer one 7.5 mm; surfaces are smooth except for a few scars. Working edge secured by bevelling is convex, thin and sharp, nicked at a few points, and damaged. There are few incised lines on one face, which do not suggest any specific pattern, the other face is scratched. Measurement: 133 mm x 38 mm x 4 mm. Period III

No. 15: Complete, with the exception of a minor break in the working edge. Broadly rectangular in form except for two somewhat triangular projecting ends of the non-cutting edge. There are two disproportionate perforations, 33 mm apart from each other, just below the non-cutting edge. One face bearing graffiti marks is slightly rough with minor scratches, the other smooth. Graffiti marks showing deeply incised lines forming an indeterminate pattern over the entire face are interesting. Working edge, slightly damaged, is nearly straight but rounded near the corners. Measurement: 122 mm x 56 mm x 9 mm. Period III

No. 16: Complete. Broadly rectangular in form with two hourglass like perforations, 16 mm apart from each other, just below the non-cutting edge. similar in proportions and equidistant from either lateral edge, the inner diameter of these perforations is 3 mm and outer one 7 mm. It is straight sided except for the broken working edge, which is slightly rounded at one end. Surfaces are extra smooth and glossy and enough grinding is in evidence. Working edge secured by symmetrical bevelling is sharp, and workmanship is good. Measurement: 112 mm x 41 mm x 8 mm. Period IV

No. 17: Broadly rectangular in form with two double bored perforations in the central portion just below the upper edge. These perforations, 26 mm apart from each other, are nearly similar in proportions, their inner diameter is 4 mm, outer one being 7.5 mm; surfaces are smooth, except for minor scars and encrustations on one face. Cutting edge secured by marginal bevelling is convex, thin and sharp, and nicked at a few points. Apart from two double bored holes just below the upper edge, there are six single unfinished holes bored from each face only, three in a row towards either

side forming roughly an arc which apparently seem non functional. Measurement: 107 mm x 37 mm x 8 mm. Period IV

No. 18: Slightly winged on one side. There are two perforations just below the non-cutting concave edge. Nearly equidistant from the lateral edges, these perforations are uniform, their outer diameter is 6.5 mm, and inner one 3.5 mm. Surfaces are partially smooth. Working edge secured by bevelling is straight, sharp, and nicked at a few points. Measurement: 88 mm x 34 mm x 8 mm. Period IV

No. 19: Complete, approaching trapezoidal in form, it is the only specimen with three unevenly spaced perforations just below the non-cutting edge. Perforations are nearly uniform, their outer diameter is about 7 mm, and inner one 3 mm. Surfaces are partially smooth. Working edge is straight, rather blunt, and nicked at a few points. Measurement: 103 mm x 47 mm x 10 mm. Period IV

No. 20: Broadly quadrilateral in form with two closely spaced perforations, 11 mm apart from each other, just below the non-cutting edge. Perforations, worked slightly closer towards broader lateral edge, are nearly similar in proportions, their inner diameter is about 4 mm, and outer one about 7 mm. Surfaces are partially smooth, with a chip off on one face. Working edge secured by bevelling is nearly straight and sharp. Measurement: 74 mm x 43 mm x 7 mm. Unstratified

No. 21: Complete except for a minor break near one of the perforations. Approaching trapezoidal in form, there are two perforations just below the slightly concave non-cutting edge. Perforations are 15 mm apart from each other, their outer diameter is about 7 mm, and inner one being 3.5 mm. Surfaces are generally smooth, except for minor scars. Working bevelled edge is thin and sharp. Measurement: 156 mm x 68 mm x 9 mm. Unstratified

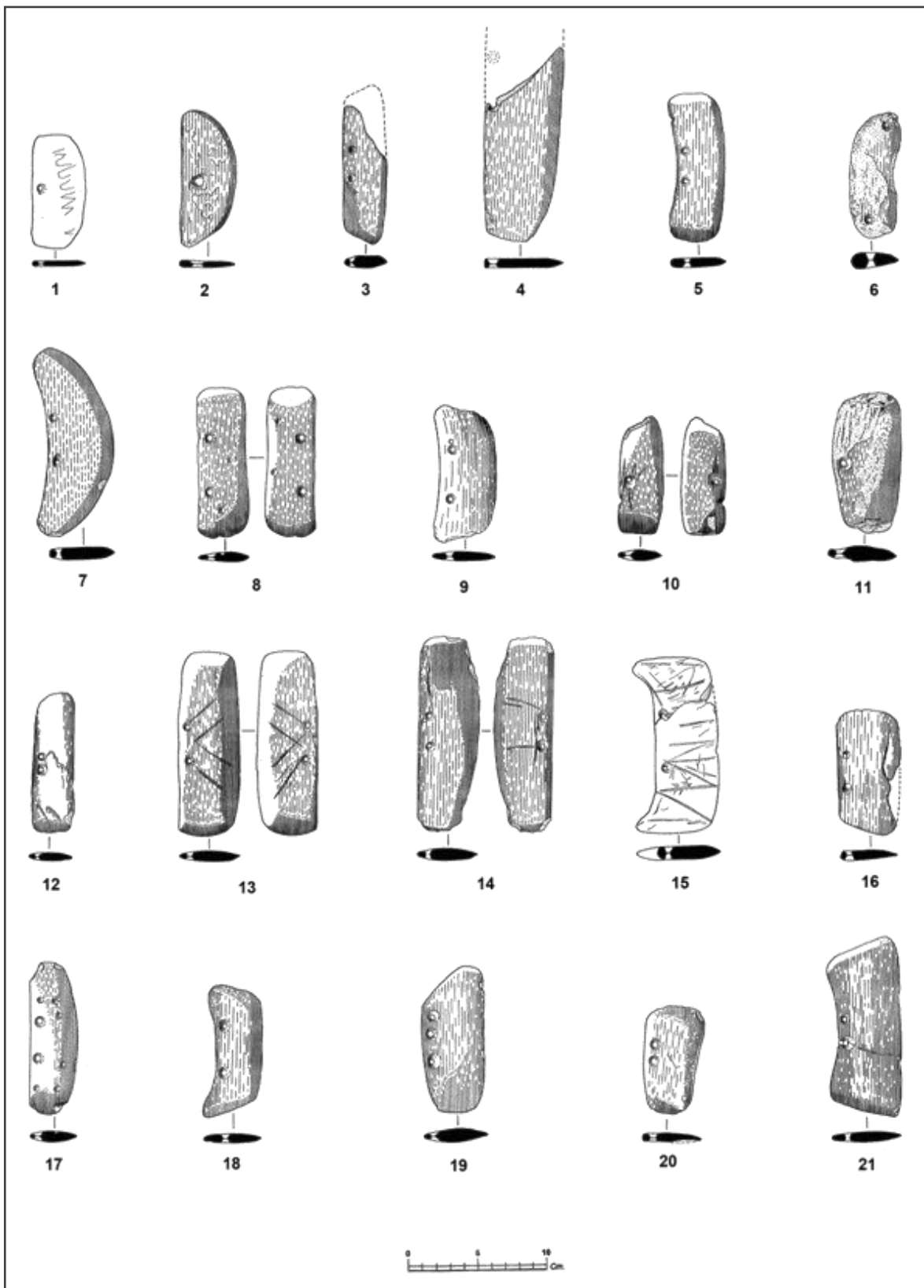


Fig. 4.2.24 Harvesters or Perforated Knives

4.3 BONE TOOLS

Burzahom offers a wide array of bone tools. Their shape, size, and quantity suggest that they were used extensively in varied activities – fighting, hunting, skinning, stitching, knitting and weaving, boring, cutting, sawing, and the like. In the following sections of this chapter an illustrated account of the available bone tool types is given.

LONG POINTS

DAGGER TYPE SINGLE EDGED LONG POINTS

Long points, amounting to one hundred and seventy eight (178) unearthed from the excavations at Burzahom, are mainly 'stiletto like' implements and might have been used for butchering the wounded game, cutting the limbs, as personal weapons for hunting and fighting, awls and borers and skinning. Mostly with very few exceptions these are long and sturdy tools, generally with sharp, slender incisive points, thick butts; well worked shafts properly trimmed, smoothed faces and edges, effectively ground and polished. However, in a few cases the operative point is blunt. The sizes vary between 127 mm and 206 mm on the basis of anticipated lengths wherever it has been possible to do so. These implements have mostly been fabricated from metapodial bones longitudinally split by grooving along the vertical axis, retaining sturdy proximal ends as butts or handles. In a few cases, only quarters of metapodial bones longitudinally split have been utilized for fabricating the implements with articular surfaces carefully worked.

Apart from metapodial bones, fragments of long bones have also been utilized for manufacturing these implements. The butt ends are generally sturdy and afford effective grip whenever necessary. No special workmanship is in evidence in shaping the butt ends, in few cases even the cancellous tissues have been ineffectively trimmed or even ground.

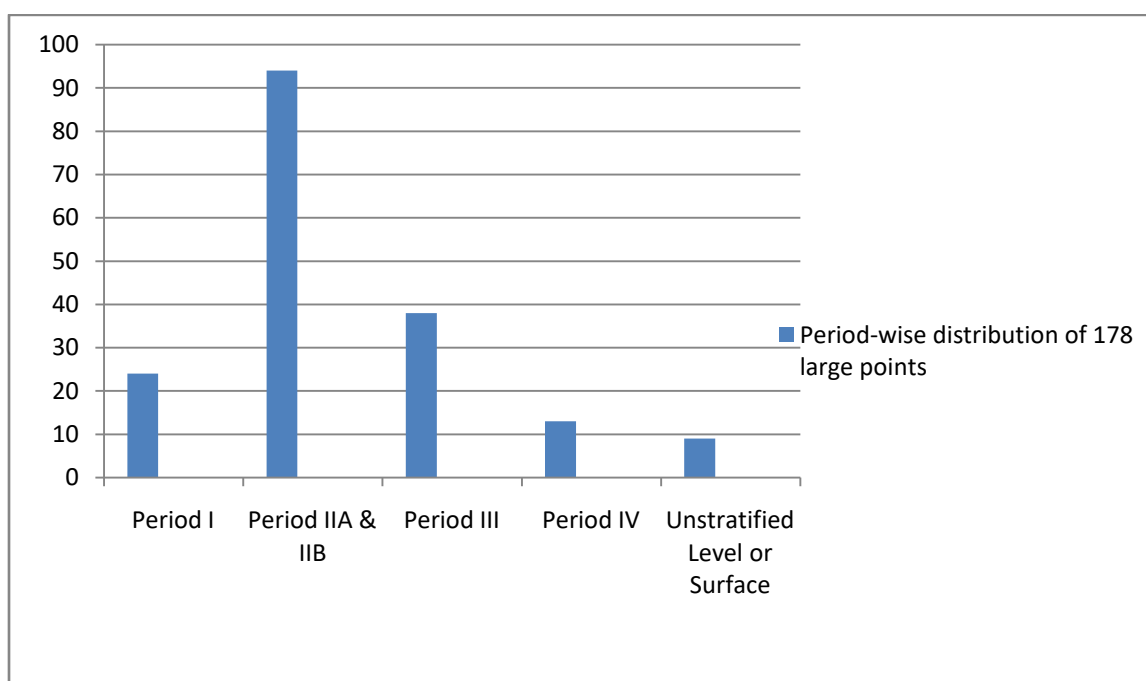
The shafts generally thick and sturdy have been fully or partially worked edges and faces trimmed, and effectively ground and are generally thick and sturdy. In a few cases, however, inner faces and lateral edges (including natural cavity of bones) have been partially worked upon or left rough. The surfaces are glossy, highly glossy or partially so. The maximum workmanship is confined to the formation of the sharp and slender blunted points. For this purpose, the edges taper smoothly or sharply in the

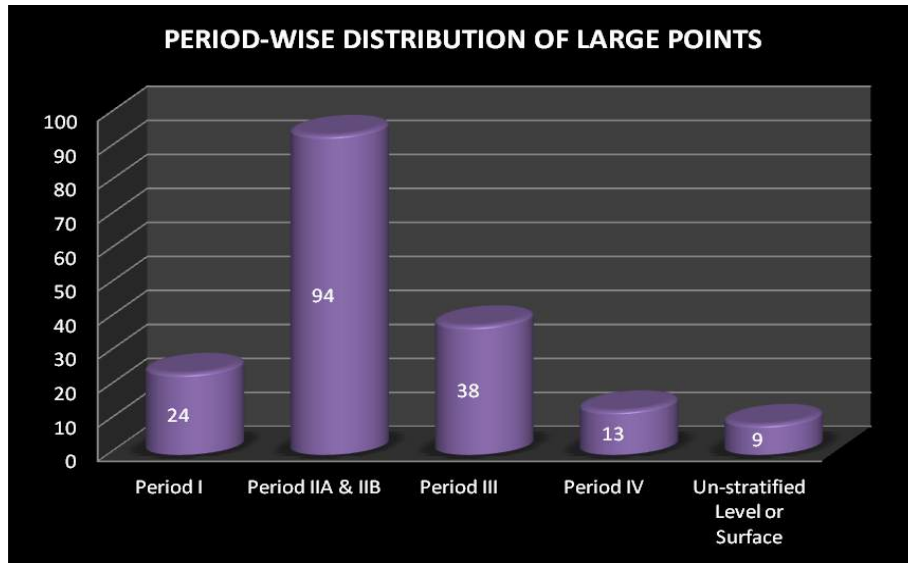
lower parts of the tool which have mostly been rounded. The point may have sharp tips abruptly terminating, or slender points, measuring 5 mm to 10 mm long.

In case of short or long stocky points, the shaft is generally rounded to a greater extent. However, in few cases, there is a shoulder like formation near the operative slender part of the tool, which indicates rotary motion during use. These types may have been used as borers or awls as well. Although there is no marked variation in typology, the classification is based on minor variations in shaping the butt ends, main part of the shaft and formation of the operative part. There are few unusual types, not effective as weapons, therefore may have been used as skin cutter or decorative work. There are also pen type points; few retain knife-like working ends etc.

The period-wise distribution of 178 large points is as follows:

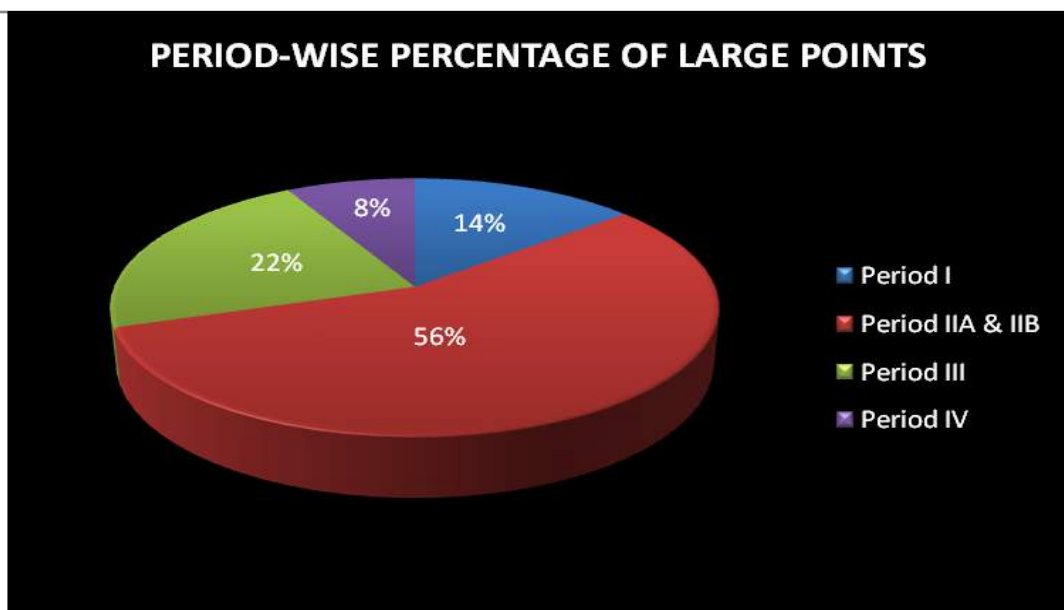
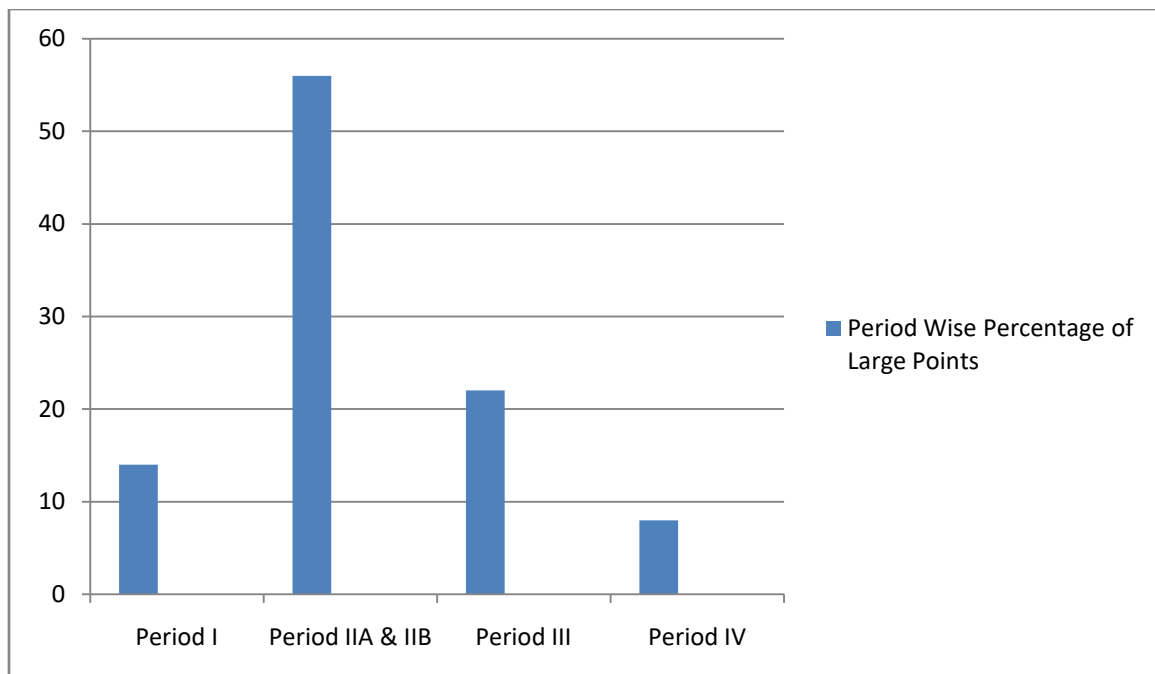
Period I: 24, Period IIA & IIB: 94, Period III: 38, Period IV: 13 and un-stratified level or surface: 9





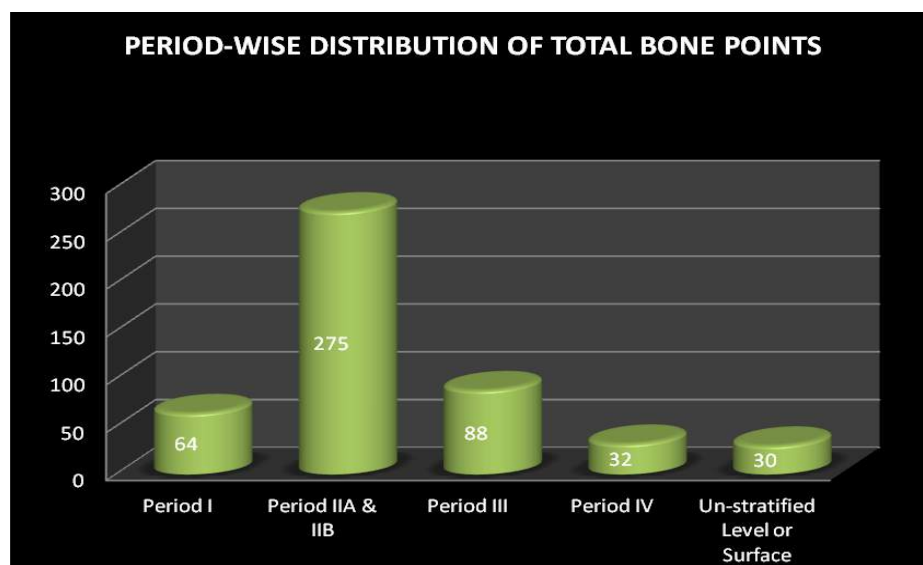
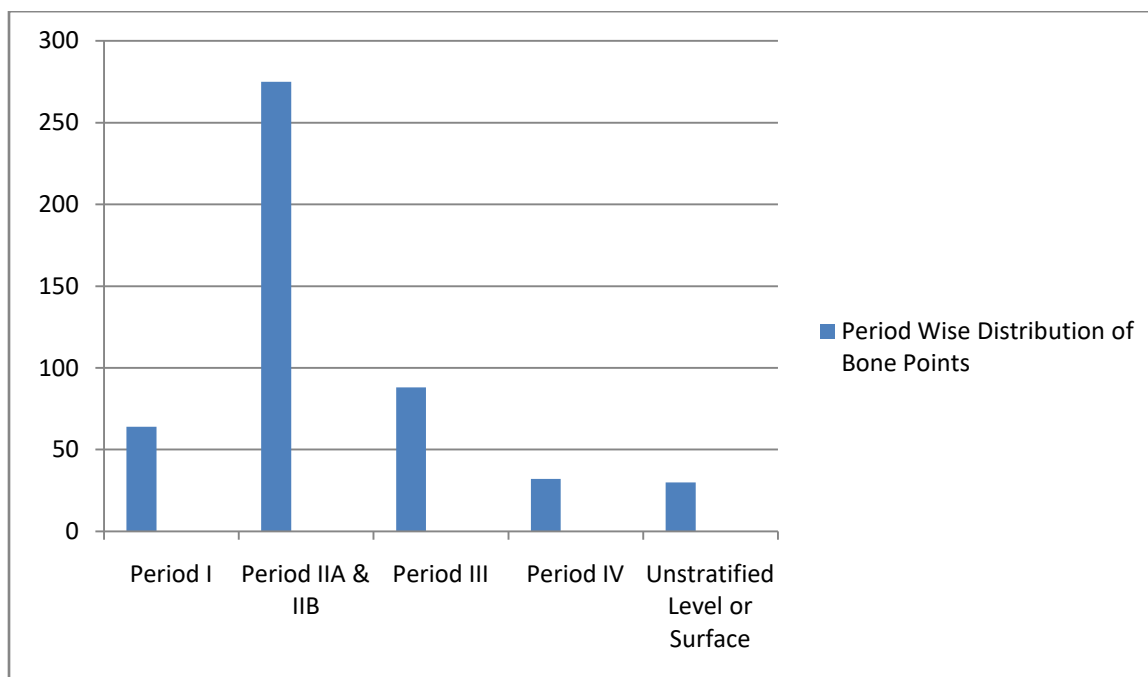
Excluding specimens from Un-stratified level or Surface, approx percentage-wise break-up of their occurrences is as follows:

Period I: 14%, Period IIA & IIB: 56%, Period III: 22%, Period IV: 8%.



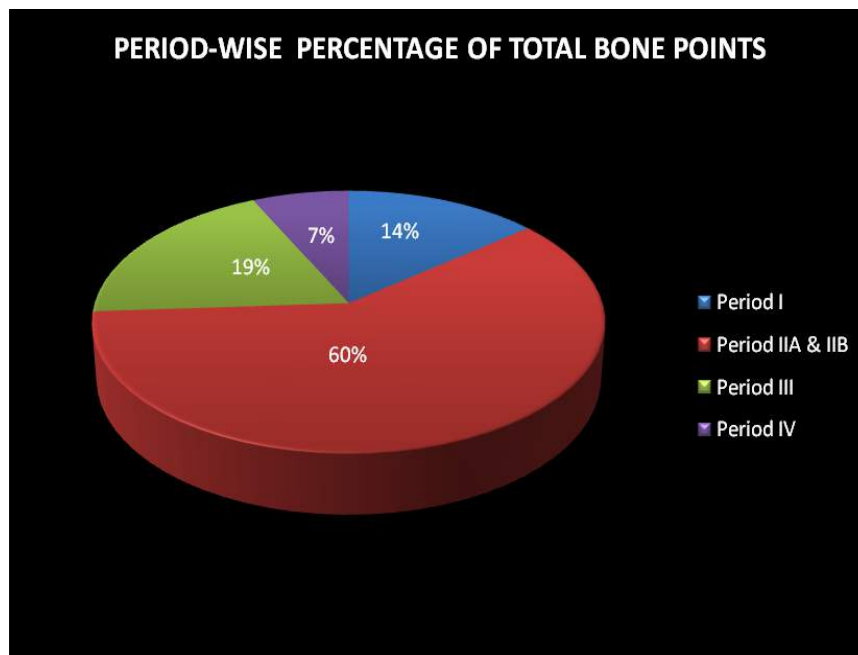
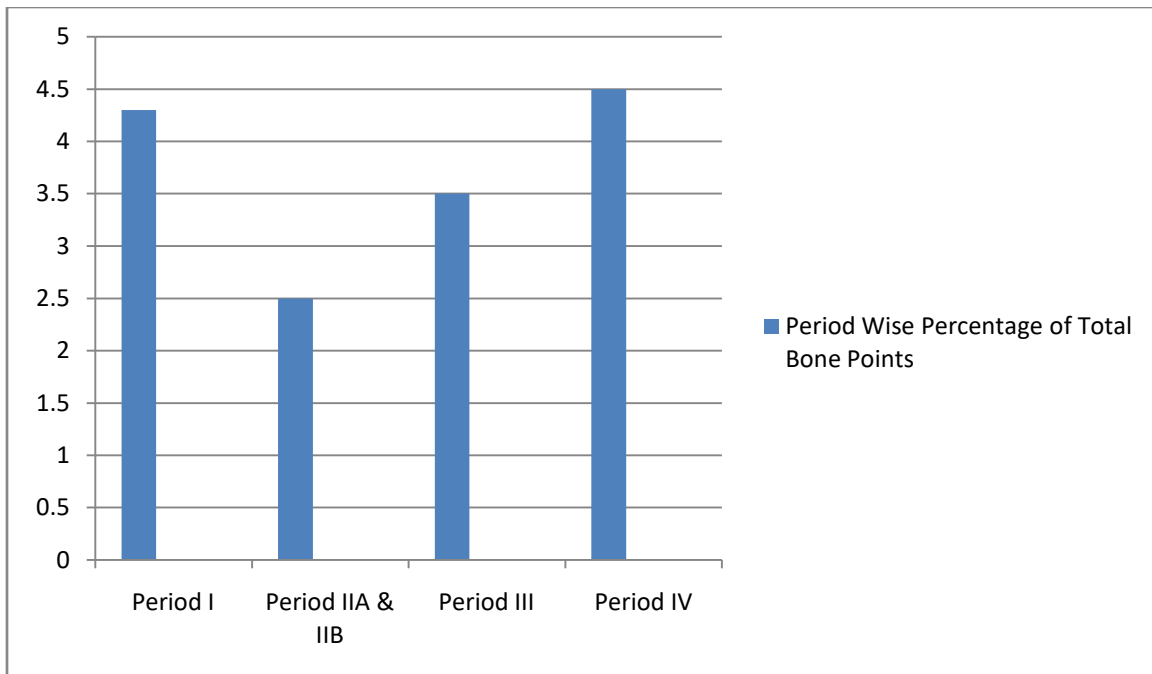
If the medium-sized, short, and broken points are taken into consideration, these would form the largest collection of bone tools from Burzahom, being 489 in number, which is significant. Their period-wise distribution is as follows:

Period I: 64, Period IIA & IIB: 275, Period III: 88, Period IV: 32, Un-stratified Level and Surface: 30



Excluding specimens from Un-stratified level or Surface, the approx percentagewise break-up of their occurrence is as follows:

Period I - 14%, Period II A & II B - 60%, Period III - 19%, Period IV - 7%.



Among these tool assortments, 21 long points along with their variant types are illustrated here (Fig. 4.3.1 nos. 1 to 5, Fig. 4.3.2 nos. 6 to 9, Fig. 4.3.3 nos. 10 to 17 and Fig. 4.3.4 nos. 18 to 21). The stratigraphical sequence of these long points is as follows: Specimen no. 12 is recovered from Period I; Nos. 1, 1b, 2, 3, 7, 8a, 9, 9a, 9b, 11, 13, 15, 17, 18, 19, 19a, and 21 are from various levels of Period IIA; Nos. 1a, 5, 8, 8b, 10, 16 are from Period IIB; Nos. 6, 9c, 14, and 18a are from Period III; No. 20 is from Period IV; and No. 4 is from an Un-stratified Level.

No. 1: Complete in all respects. Fabricated by working down the one half of a longitudinally split metapodial bone with the articular surface retained as butt, which is the proximal end. The buttend is flat. The Shaft is dressed and well shaped, smoothed by grinding. Surfaces are glossy. The high gloss on some exposed parts of the surface may have been acquired due to use. Maximum workmanship is confined to the lower part of the tool 35 mm above the tip), which is oval to rounded and fully rounded in cross section. This part is ground finely and polished to form a slender sharp point. The edges of the shaft taper towards the pointed tip are pretty sharp and incisive. The inside aspect of the tool shows the hollow of the marrow cavity, the section above the mid-point, is concavo-convex. The median sulcus is prominent towards the butt end. Length is 162 mm. Period IIA

No. 1a: Tip of the slender point is broken. Fabrication is slightly rougher on the inner face. Smoothing is nominal and grinding is fine except for one edge. .. The Lower part of tool has been rounded. The inside concavity is not marked. The outer face being convex. The edges are almost straight but taper smoothly in the lower part of the tool to form the sharp point. Shows traces of polish due to use. The Lower part is glossy. Extant length is 198 mm and anticipated length is about 206 mm long, as such it is the longest point in this category. Period IIB

No. 1b: Operative tip is broken, butt end naturally irregular, partly flattened, surface effectively smoothed and highly glossy. The outer face has a high ridge along with vertical axis. The inside aspect shows hollow of the marrow cavity. Chipped off above broken tip, either during fabrication or else due to use. Extant length is about 160 mm. Originally it may have been about 170 mm, inclusive of the broken tip and butt end. Period IIA

No. 2: Complete except for the lowest part of the point; proximal end of longitudinally split metapodial bone has been retained as butt with minor trimming. Shaft is slightly curved in outline, surfaces are properly smoothed and glossy, more workmanship is indicated in lower part which has been rounded and ground effectively near the existing tip. Section in the middle part of the tool is concavo-convex with rounded sides. Traces of polish are evidenced due to use. Extant length is 178 mm. Anticipated Length is 184 mm. Period IIA

No. 3: Complete, fabricated from one quarter of a longitudinally split metapodial bone, flat articular surface has been retained as butt, shaft carefully dressed, surfaces effectively ground. Contour tapers smoothly to form a 6 mm slender sharp point.

Surfaces are glossy; shaft is flattened oval in section in central part and nearly rounded towards point. . Length is 194 mm. Period IIA

No. 4: Fairly sturdy tool, complete except for broken tip and rough butt end. Medullary cavity is prominent, major portion of shaft is concavo-convex in section, but rounded towards tip. Not much workmanship is in evidence; sides taper off sharply to form a sharp point. Minor traces of glossiness from mid-point towards point due to use. Extant length is 141 mm. Anticipated length is 143 mm. Unstratified

No. 5: Complete, except for broken tip. Shaft roughly dressed, sides taper off irregularly from butt end up to rounded lower part of shaft, and sharply towards tip forming about 10 mm slender incisive long point. Traces of glossiness are visible, due to use. Extant length is 157. Anticipated length is 161 mm. Period II B

No. 6: Complete, except for broken point, butt end slightly trimmed and flat. 1/3rd of butt end roughly fabricated, surfaces not smoothed, sides roughly whittled. Remaining portion shows good workmanship, surfaces have been properly smoothed by grinding. Shaft is flattened oval in section. Surfaces are glossy from mid point towards the pointed tip. It is a sturdy tool. Extant length is 183 mm. Anticipated length is 200 mm. Period III

No. 7: Complete except for broken tip, butt partly and obliquely trimmed, end being flat, nicely fabricated, edges properly shaped, and effectively ground. Surfaces are highly glossy. It is a sturdy thick tool with almost straight sides, which taper off sharply towards point where shaft is rounded to form a slender incisive tip. Natural cavity is prominent towards butt end of one face; the other has a high ridge along vertical axis. Extant length is 135 mm. Anticipated length is 137 mm. Period IIA

No. 8: Complete except, one side of shaft towards butt end broken. The right lateral margin has been roughly dressed up to mid-point and no smoothing is in evidence. Face with natural cavity is scarred. Workmanship is confined mainly to portion below mid-point showing effective grinding and smoothing, sides taper off sharply towards point, shaft is flattened oval in this part, and evenly rounded and thinned down towards a blunted tip, probably a result of re-grinding of the broken original tip. Surfaces are glossy from mid-point towards tip. Length is 141 mm. Period IIB

No. 8a: Complete, except for broken butt, Shaft poorly dressed, with scarred face. Workmanship is confined mainly to portion from mid-point towards tip with sides tapering off sharply and terminating in a thinned down round point. Surfaces are glossy, especially towards point. Length is 159 mm. Period IIA

No. 8b: Complete, lower part evenly rounded as in No. 8, terminating in a blunt point, butt end obliquely squared off. Surfaces have been properly dressed and smoothed. The outer face has been flattened, the other rounded, section being semi-circular in central part. Surfaces are highly glossy. There are some scratches on the outer face below the middle point. Original longitudinal grooving made by a chisel or a sharp point is evident and can be seen in the side view of the tool. Length is 139 mm. Period IIB

No. 9: Complete, except for upper part of the tool. No smoothing on inner face and the lateral edges of the shaft. .Albeit irregular whittling has resulted in a scarred face. Central part of shaft is concavo-convex in section, trapezoid towards point. Sides taper off sharply and terminating in a point, rounded near operative tip. Surfaces are partially glossy. Length is 131 mm. Period IIA

No.9a: Pointed tip and upper most parts of the tool are broken, extant shaft quite sturdy. Inner face in the central part of the shaft is scarred. Not much smoothing in evidence, section being irregular. The edges taper shortly below the middle point to form the evenly rounded lower part of the shaft, which could have been terminated in a sharp or blunt point. The surface below the mid point are glossy. Length is 138 mm. Period IIA

No. 9b: Both ends broken. Surfaces smoothed and glossy, section of existing shaft concavo-convex, rounded towards operative part with one side sharply tapering off. Length is 102 mm. Period IIA

No. 9c: Complete except for the lower part of the tool which is broken. The butt end is irregularly oblique and rough. The lateral edges have been roughly done. One edge is straight but there is an oblique cut on the other edge, in the lower part of the shaft. The shaft has been rounded above the broken end. The section in central part of shaft is irregular concavo-convex having traces of glossiness due to use. Length is 146 mm. Period III

No. 10: Complete, fabricated from one quarter of a longitudinally split metapodial bone, articular surface, trimmed and rounded. The surfaces have been smoothed and are glossy. The outer face is flat and the inner one is rounded upto the middle point of the tool. The lateral edge have been whittled nicely and taper smoothly till the and sharply to form the slender sharp point. Length is 163 mm. Period IIB

No. 11: Complete, except for the sharp tip of the operative point is broken. The butt end has been properly shaped, rounded off and is glossy. It is the only specimen in which the butt end is glossy. The surfaces have been properly smoothed and are highly

glossy. The edges taper smoothly to form the slender point, the tip is broken. A major part of the tool below the butt end has been partly rounded, the section being almost irregular. The lower part approaches the rectangular with rounded sides in section. The slender point has also been rounded.. Length is 130 mm. Period IIA

No. 12: Complete, except for the lower part of the tool, which is broken. The shaft is tubular, partly split vertically 40 mm below the butt end. . The Surfaces have been ground and are glossy. The Section below the midpoint is semi circular up to 5 mm. above the broken edge and below this, it may have been flattened towards the sharp point, which is broken. Length is 139 mm. Period I

No. 13: Complete except for the lower part of the tool, which is terminated in a sharp point and is broken. Fabricated from one quarter of longitudinally split metapodial bone and the articular surface is neatly trimmed. The butt end is flat . The Surfaces have been properly dressed and are glossy. The edges taper smoothly towards mid point, then taper sharply towards the sharp tip. The lower part of the shaft is thin rounded and as such a greater part of the tool is operative. The Section in the central part is nearly oval. Length is 139 mm. Period IIA

No. 14: Complete, except for the sharp tip which is broken. Roughly trimmed butt end. The shaft has been properly smoothened. Surfaces are glossy. The major part of shaft is concavo-convex in section. The lateral edges are nearly straight except for the one third of the tool where these taper sharply to form the point. length is 126 mm . Anticipated length is 128 mm. Period III

No. 15: Complete, except for broken tip. Butt end is flat, with minor trimming, , and semi-circular in outline. Central part of shaft flattened and, being relatively thin for its size. Shaft is glossy and slightly curved in outline, section in centre is rectangular, and rounded towards point. Sides taper off sharply towards slender tip. Length is 153 mm. Period IIA

No. 16: Complete, a sturdy tool. Articular surface of butt end retained, irregularly trimmed. Shaft in central part is flattened oval in section and rectangular with rounded sides towards point. Sides taper off sharply towards tip, which is rounded and blunt. Traces of glossiness are obvious, grinding is effectively done. It could have been used as a dagger. Length is 138 mm. Period IIB

No. 17: Complete, except for broken tip. The articular surface has been retained as butt after longitudinal split. Sides roughly dressed but with effective grinding, surfaces highly glossy, medullary cavity prominent. Shaft towards point evenly rounded. Sides

taper off sharply from mid-point to form a slender point. Length is 125 mm. Anticipated length 127 cm Period IIA

No. 18: Complete except for the broken upper part of the tool.. The Surfaces, especially the lateral edges have not been properly dressed and are glossy. In lower part of the tool, the lateral edges have been notched producing an arc shaped with some scratches. It is not clear whether the notching i notching is intentional, functional or accidental during fabrication. One operative part of the tool is tr triangular in outline, terminating in a rather flat blunt point. It could have been used as a skin cutter or decorative work. Length is 135 mm. Period IIA

No. 18a: Complete except for the broken butt end and the sharp tip of the slender point. The inner face and the lateral edge have been roughly executed. Only the operative part of the tool is glossy. There are a few scratches on the central part of the shaft on the outer surface. Length is 152 mm. Period III

No. 19: Complete, except for a few chips off at and near the lower end. The long shaft is straight sided except for the upper and the lower part. The outline is triangular at the upper end, terminating in a blunt point The shaft is sturdy, nicely nicely dressed and grinded. The formation of the point indicates that the tool may have been used as a skin cutter also.Length is 173 mm. Period IIA

No. 19a: Complete, except for broken operative point. Shaft is fairly sturdy, dressed well, effectively ground, and bears scratches. Surfaces are glossy. Section for the major part is irregular, except towards operative part, which is oval to round, edges tapers off smoothly terminating in a point. Length is 161 mm. Period IIA

No. 20: Complete, except for broken point. Shaft towards butt end roughly dressed and bears oblique cuts, central part irregular in section, workmanship is confined mainly to operative part which is highly glossy and oval in section, with sides tapering off sharply to form tip. Remaining surfaces are partially glossy. Length is 137 mm. Period IV

No. 21: Complete, except for broken tip. No workmanship is in evidence for shaping the buttend which is partially chipped off. Shaft well dressed and smoothed, lateral edges are mostly rounded. One face has a minor concavity due to the natural hollow of bone; other face bears a central ridge. Except for the functioning part, the lateral edges tapers off sharply to form a point, section in this part is oval to round. Surfaces are glossy except for the concave portion. Length 115 mm. Inferred length about 117 mm. Period IIA

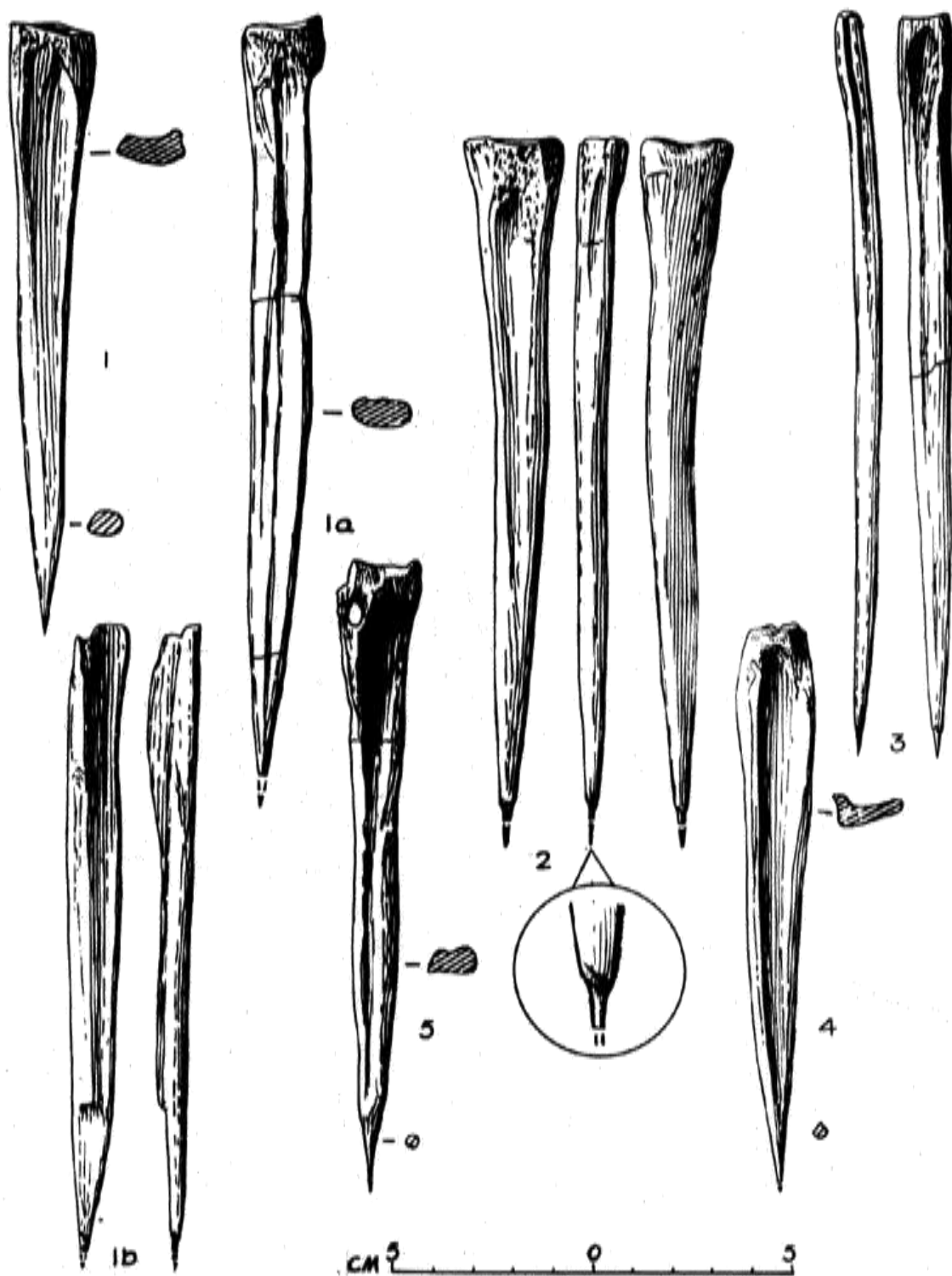


Fig.4.3.1 Dagger type single edged long point

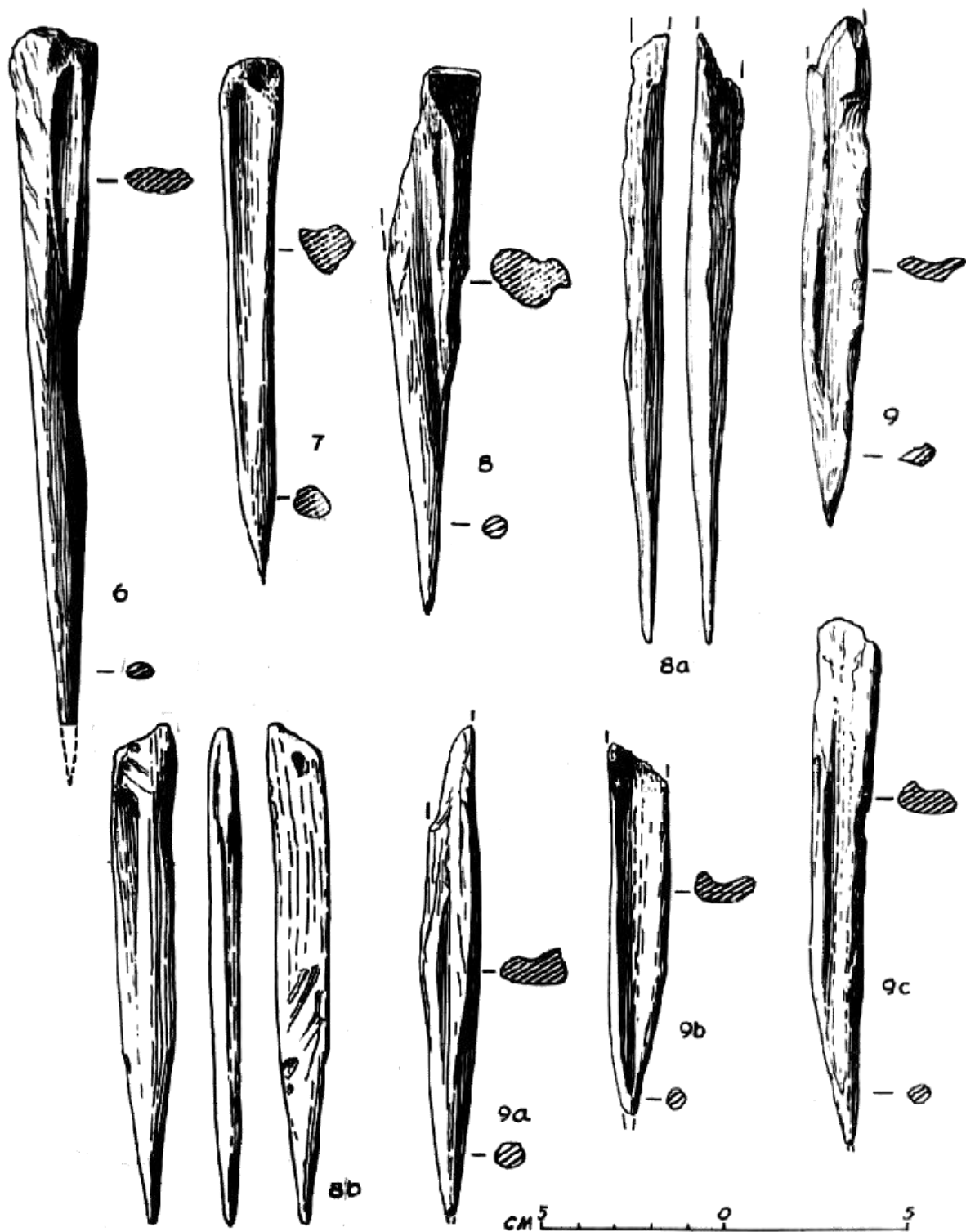


Fig.4.3.2 Dagger type single edged long point

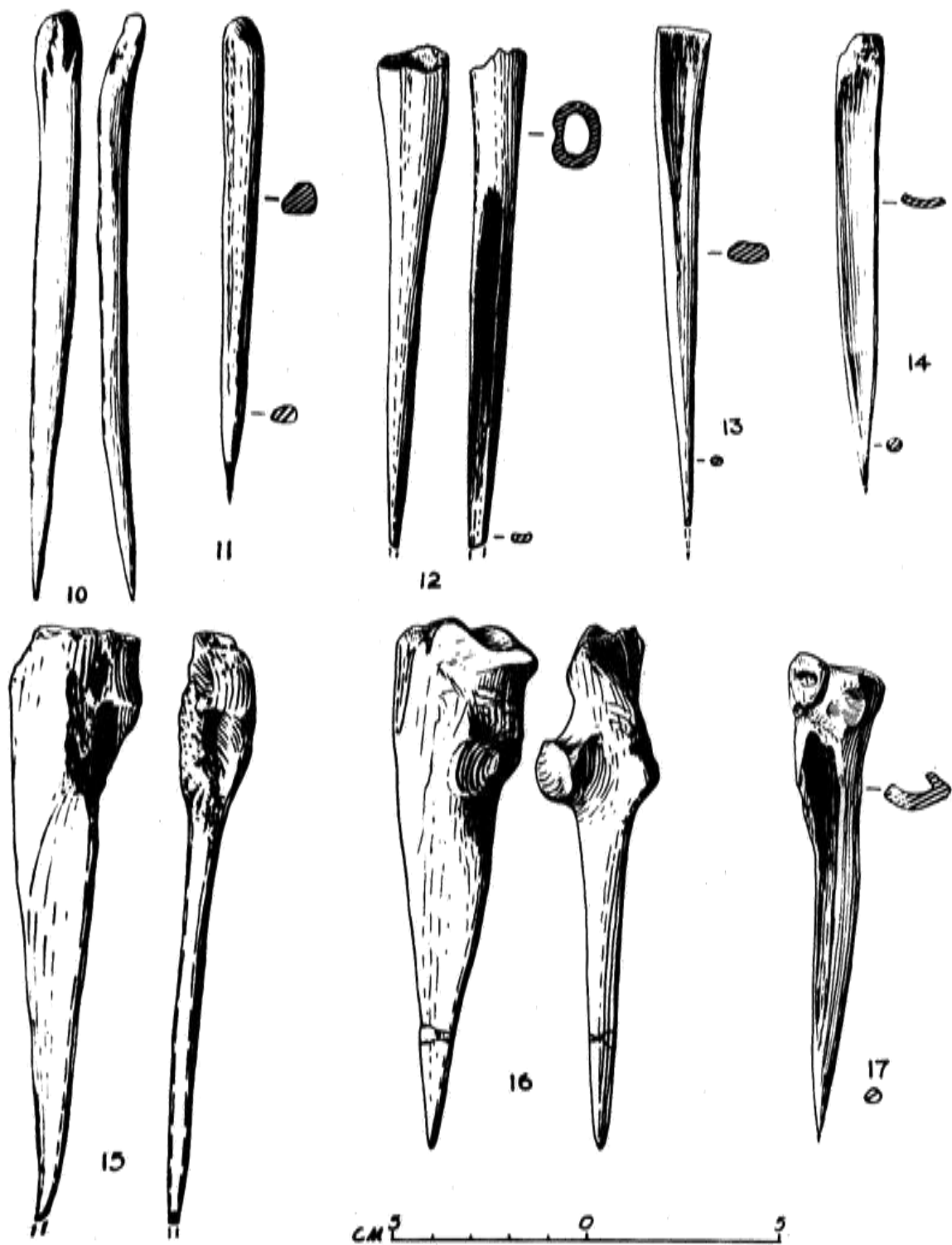


Fig.4.3.3 Dagger type single edged long point

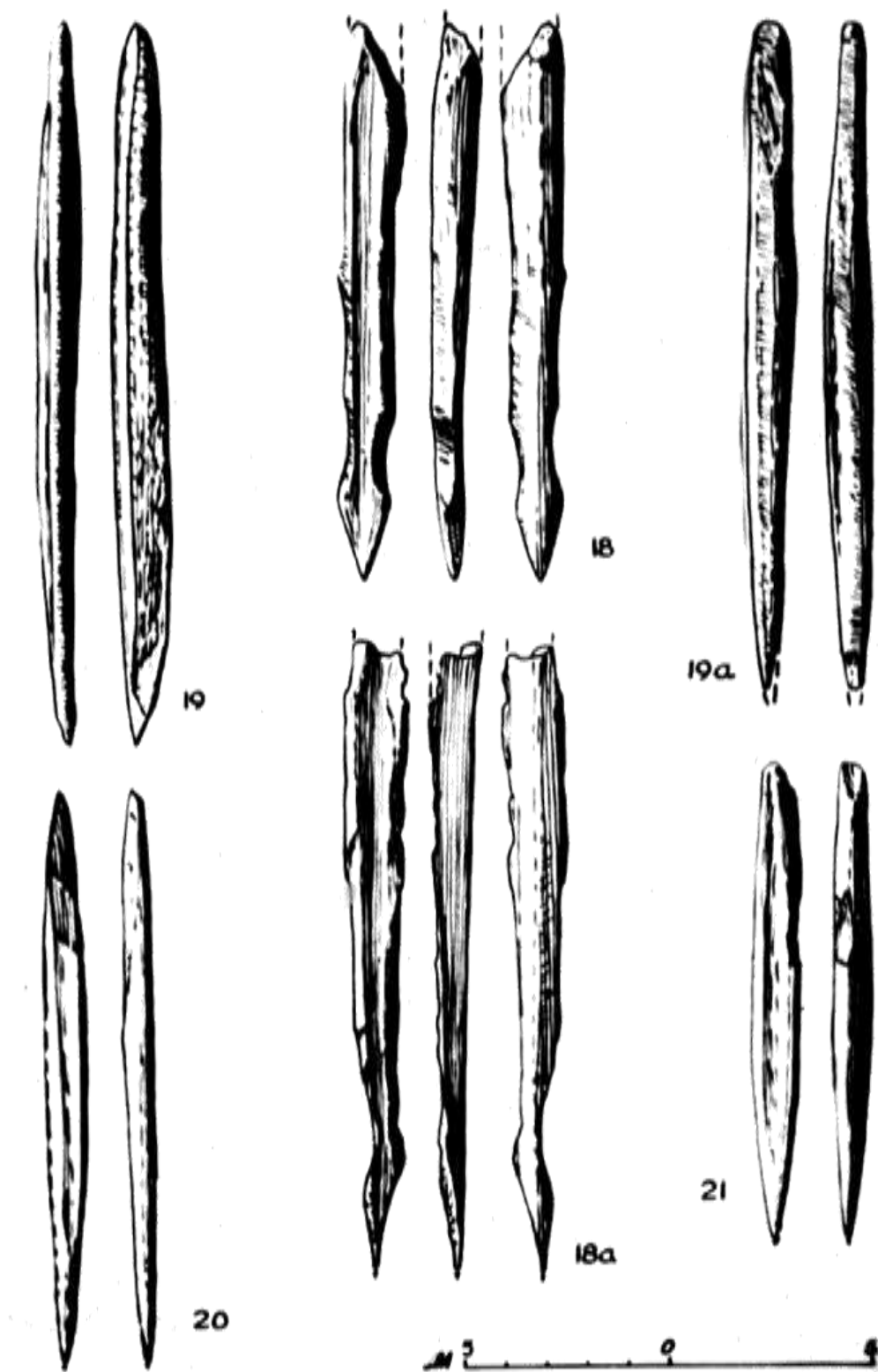


Fig.4.3.4 Dagger type single edged long point

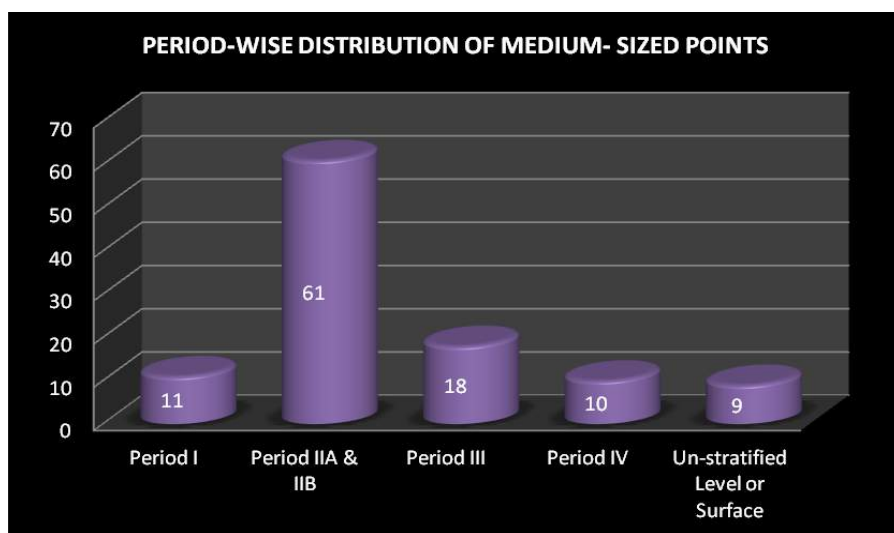
MEDIUM SIZED POINTS

DAGGER TYPE SINGLE EDGED MEDIUM POINTS

There is no marked variation in fabrication technique of both long and medium points. Fabrication of buttend, shaft and operative part follow nearly the same pattern, main point of variation is the size of the latter that varies from 88 mm to 120 mm in length on the basis of anticipated lengths. These medium sized points are made from metapodial or long bones, split along the vertical axis, with articular surface from the proximal or distal end retained as butt. Only The butt ends have been trimmed or left just as these were to serve as handles. Buttsends are mostly sturdy and provide effective grips. In very few cases, these have been properly dressed and smoothed. Shafts have generally been dressed, smoothed and nicely ground, sections are concavo-convex, flattened oval or irregular as in case of long points and may vary at different points. Surfaces are generally smooth, especially on outer face, which are mostly glossy or partially glossy and in few cases highly glossy. Maximum workmanship, however, is confined to large, medium, or short points, which being the operative part. These have been nicely shaped and smoothed, in section flattened oval, oval to round or neatly round, the operative part being generally slender with sharp or incisive tips. Some operative points are short and stocky. However, in one case, it is a knife like tool. Generally points are glossy or highly glossy. Thus, from the functional view point, medium sized points may have been used like short daggers or reamers in skinning and slicing flesh of hunted game. Besides, these might have also served as special types of borers.

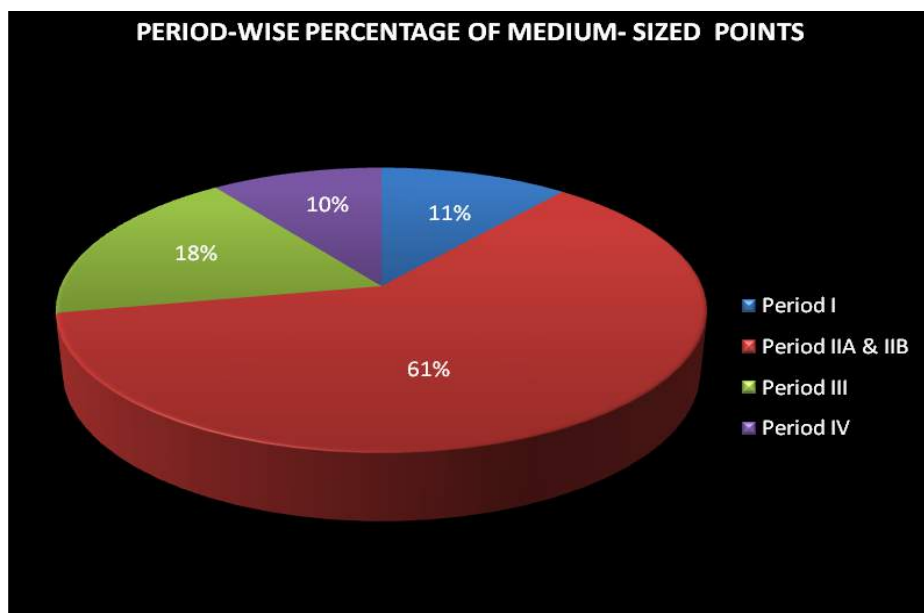
The specimens of medium size points are high. So far 109 specimens belonging to various periods have been found in the excavations: out of these, 13 specimens with their variant types have been illustrated (Fig. 4.3.5 nos. 1 to 6a and Fig. 4.3.6 nos. 7 to 13).

The period-wise distribution of medium-sized points is as follows:



**Period I: 11, Period IIA & IIB: 61, Period III: 18, Period IV: 10,
Un-stratified Levels and Surface: 9.**

Excluding specimens from Un-stratified level or Surface, the percentagewise break-up of their occurrences is as follows:



Period I: 11%, Period IIA & IIB: 61%, Period III: 18%, Period IV: 10%.

On the stratigraphical basis among the selected illustrated specimens, Nos. 3 and 6 have been found from Period I, Nos. 1a, 2, 2a, 4, 9, 10, 11, and 12a recovered from various levels of Period IIA, Nos. 1 and 7 revealed from early levels of Period IIB, No. 5 exposed from Period III, Nos. 6a and 8 retrieved from Period IV and Nos. 5a, 12, and 13 gleaned from un-stratified level or surface.

These are a few representative types specified below:

No. 1: Complete; fabricated by longitudinally splitting metapodial bone to half through proximal portion with articular surface retained as butt. Shaft has been dressed, smoothed and ground well, laterally rounded from mid-point towards operative part. Section is irregular towards butt end and concavo-convex towards opposite end except operative part which is oval to round terminating in a slender blunt tip. Surfaces are mostly glossy except butt end and highly glossy in 1/3rd portion of the pointed end. Face with natural cavity shows median sulcus and cancellous tissues, which are prominent near butt end. The broad thick butt, providing a proper grip, makes it a sturdy tool and effectively used as short dagger. Length is 107 mm. Period IIB

No. 1a: Complete, except for broken tip, having thick sturdy butt. Surfaces are smooth and highly glossy except the buttend. Shoulder like formation in slender portion of operative part indicates rotary motion during use.. The lower 1/4th portion of the operative part is irregular showing oval to rounded, rounded, and flattened oval in the slender part. Length is 107 mm. Anticipated length is 111 mm. Period IIA

No. 2: Complete except for a broken portion of the slender point. Fabricated out of a longitudinally split of a metapodial bone, the articular surface roughly trimmed. Dressing and smoothing is upto mark. The lateral margins are faceted to round. The marrow cavity is prominent above the mid point. The section is concavo-convex. It could have been used as a borer. The edges taper smoothly to form the operative part. Length 116 mm, anticipated length is 120 mm. Period IIA

No. 2a: Complete except for broken tip. Shaft nicely dressed, smoothed, and faceted; section is concavo-convex, except for operative part which is oval to round in section with slender portion neatly rounded. Surfaces are glossy. Sides taper off smoothly to form point. Length is 116 mm. Period IIA

No. 3: Complete, of high finish. Fabricated from a longitudinally split bone, butt nicely trimmed laterally and properly shaped. Cancellous tissues almost removed. Surfaces are smooth and highly glossy. Laterally faceted to rounded, and tapers off sharply from 1/4th portion of the operative part to form a slender, sharp tipped point.. Shaft is

concavo-convex in section between butt and 1/4th of the operative part, which is conical to round with neatly rounded slender operative part. Length is 101 mm. Period I

No. 4: Complete, except for broken tip. Butt roughly trimmed, flat, and rounded in outline. Dressing, smoothing and grinding are poor; laterally roughly worked. In section major part of shaft is irregular and marrow cavity is prominent. Surfaces are partially glossy from mid-point towards butt end and highly glossy towards operative part, which is dark brownish in colour in this portion. The lower part of the tool is rounded rectangular in section but the slender portion has been rounded. The lateral margin tapers sharply in the lower part to form the point. Length is 87 mm. Period IIA

No. 5: Complete. Sturdy butt obliquely trimmed. Shaft sturdy, thick, properly dressed and smoothed and faceted to rounded sides with glossy surfaces. In section major part of shaft is irregular. Tip is blunt and thick, probably reworked after original tip was broken. Length is about 105 mm. Period III

No. 5a: Complete except for broken tip. Butt trimmed and properly shaped. It is a highly finished specimen. Shaft is fairly sturdy, dressed, smoothed and ground superbly. Surfaces are highly glossy. Section is irregular, but operative part is oval to round. Length is 92 mm. unstratified.

No. 6: Complete, except for broken tip. This is a highly finished and sturdy specimen. Surfaces are highly glossy; shaft dressed, smoothed and ground nicely, laterally faceted to round. Section of major part of shaft is concavo-convex, that of operative part oval. Sides taper off sharply from mid-point to form a point. Operative part up to a length of 20mm from broken tip has been tempered by charring. Length is 110 mm. Period I

No. 6a: Incomplete, both ends are broken. Shaft roughly dressed, poor smoothing and grinding. Sides taper off sharply from mid-point to form a point. There is a lateral break in the lower part of the tool. Surfaces are partially glossy. Length is 75 mm. Period IV

No. 7: Complete, except for broken tip, roughly trimmed butt, irregular in outline. Shaft dressed and smoothed well. The outer face is highly glossy and the inner part is partially glossy. Sides taper off sharply to form a point. Length is 89 mm. Period IIB

No. 8: Complete. Heavy sturdy butt being the distal end of a longitudinally split of a metapodial bone. 1/3rd part towards butt end shows minor dressing and smoothing, the remaining one properly dressed and smoothed. The inside cavity as also the cancellous tissues towards butt end are prominent. Sides taper off sharply from mid-point towards operative part to form a short, stocky, flattish and blunt point. Section in

central part of shaft is concavo-convex, and oval up to the tip. Working tip is slightly knife like and may have been used as a skin cutter also. Length is 106 mm. Period IV

No. 9: Complete, except for broken point. Fabricated from one quarter of a longitudinally split bone with proximal end retained as butt, which has been roughly trimmed. Shaft, showing a curved profile, is smoothed and ground well, section is irregular from butt end up to mid-point, and oval to rounded towards operative part and 1/3rd portion of which neatly rounded. Surfaces are partially glossy. Operative part is sturdy and stocky. Length is about 91 mm. Period IIA

No. 10: Complete. Fabricated from a quarter of fragment of the shaft of radius longitudinally split. The buttend roughly been trimmed and is flattish. Shaft below the buttend has been nicely dressed and smoothed. Lateral margins are faceted to rounded. The inside cavity is prominent. Surfaces are highly glossy in operative part, and partially so above. Section is concavo-convex towards butt end, 1/4th portion of operative part has been rounded. The edges are tapering off sharply to form a partly slender point with an incisive tip. Length is 107 mm. Period IIA

No. 11: Complete, except for broken tip. Fabricated out of longitudinally split bone, articular surface retained to form a sturdy butt, is dressed and partially smoothed. Shaft dressed and smoothed but roughly finished. Section is concavo-convex in central part and flattened oval in operative part. The edges taper off sharply to form point. It's shape indicates its use as a borer also. Surfaces of operative part are glossy to highly glossy. Length is 93 mm. Period IIA

No. 12: Complete, except for broken slender point, butt roughly trimmed, articular surface retained as such. No smoothing is in evidence up to more than 1/3rd portion of upper part of the inner face and edges of the tool, the section is being also irregular.. Cancellous tissues are prominent; section in this part is irregular. Surfaces are glossy, section flattened oval, and neatly rounded towards sharply tapering broken point which is highly glossy. Length is 102 mm. Unstratified

No. 12a: Complete, except for broken slender point, a thinner variant of the above. Roughly trimmed butt is secured by a vertical split, exposing cancellous tissues prominently on inner face. Shaft roughly dressed, workmanship is in evidence below mid-point only. Lower part, where sides taper off sharply to form long point, has been rounded. Surfaces are glossy to highly glossy below mid-point. Length is 92 mm. Period IIA

No. 13: Complete except for broken tip. Fabricated from a longitudinally split bone, roughly trimmed, proximal end forms a sturdy butt. Excluding butt and hollow portion of one face, surfaces are highly glossy, colour being brownish. Special workmanship is in evidence in whittling on the other face, which presents a ribbed surface. Sides taper off sharply much below mid-point towards operative part to form a long point which is partly oval to rounded in section. Length is 91 mm. unstratified.

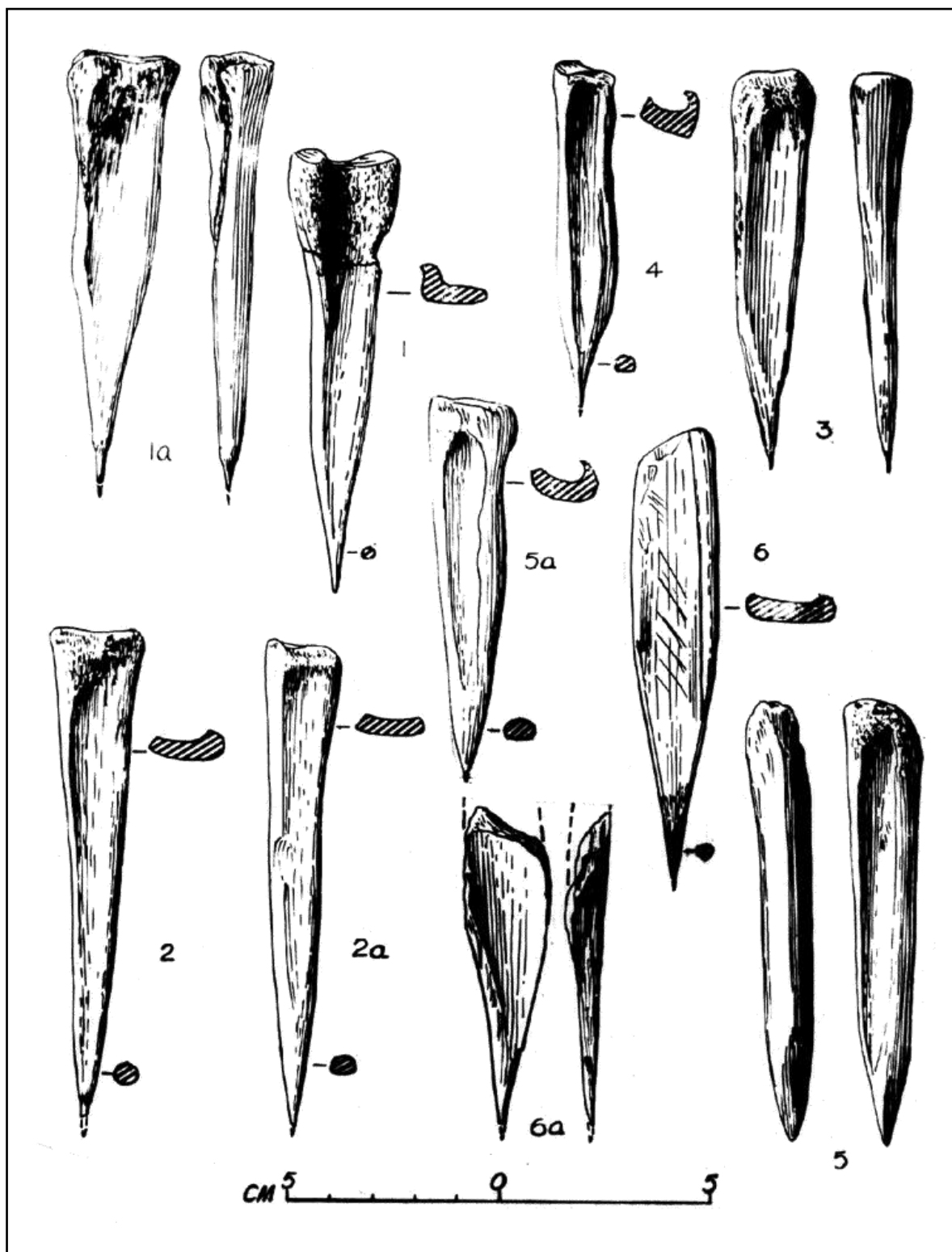


Fig.4.3.5 Dagger type single edged medium point.

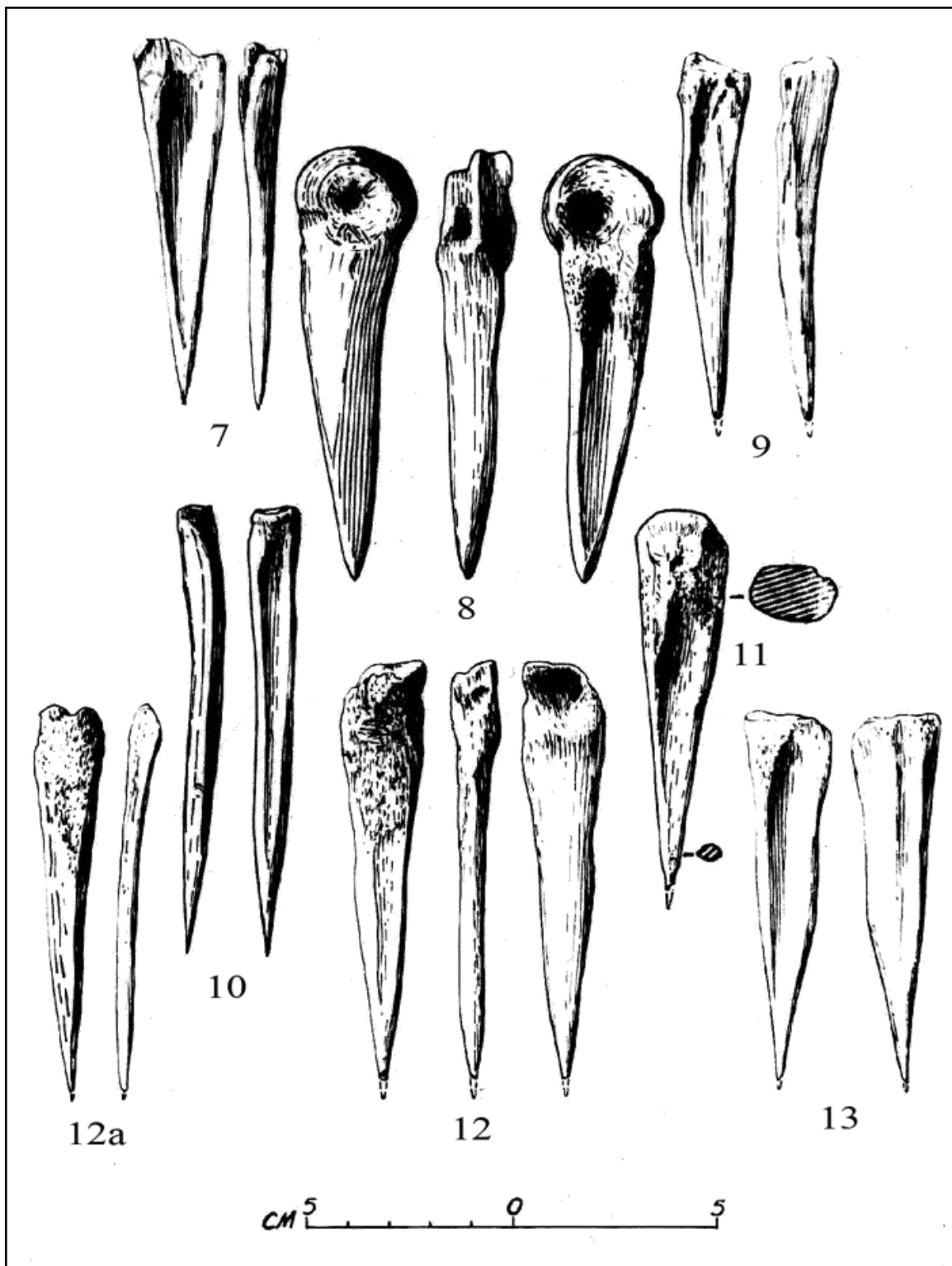


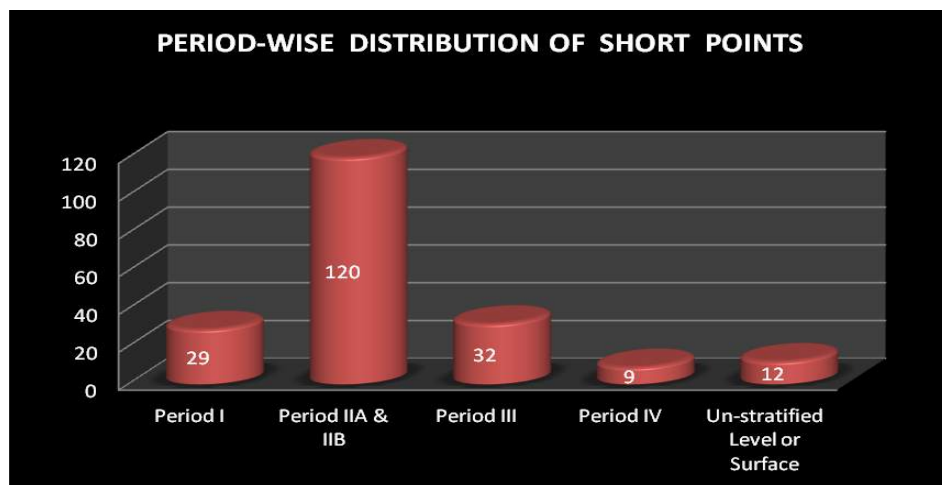
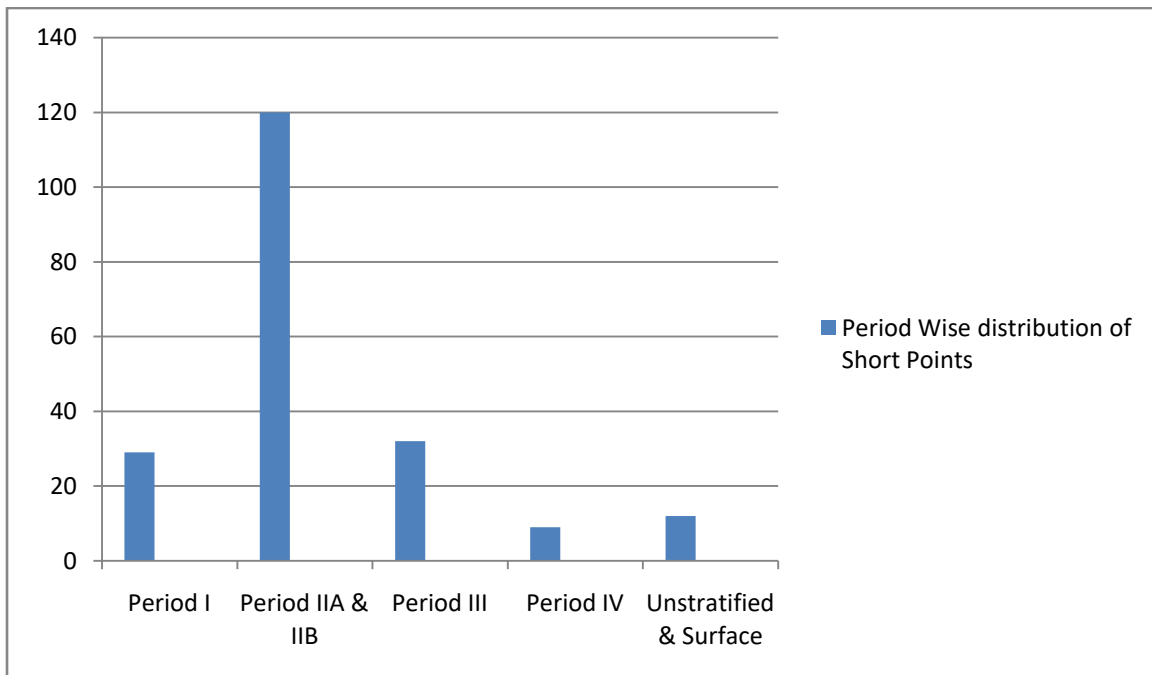
Fig.4.3.6 Dagger type single edged medium point

SHORT POINTS

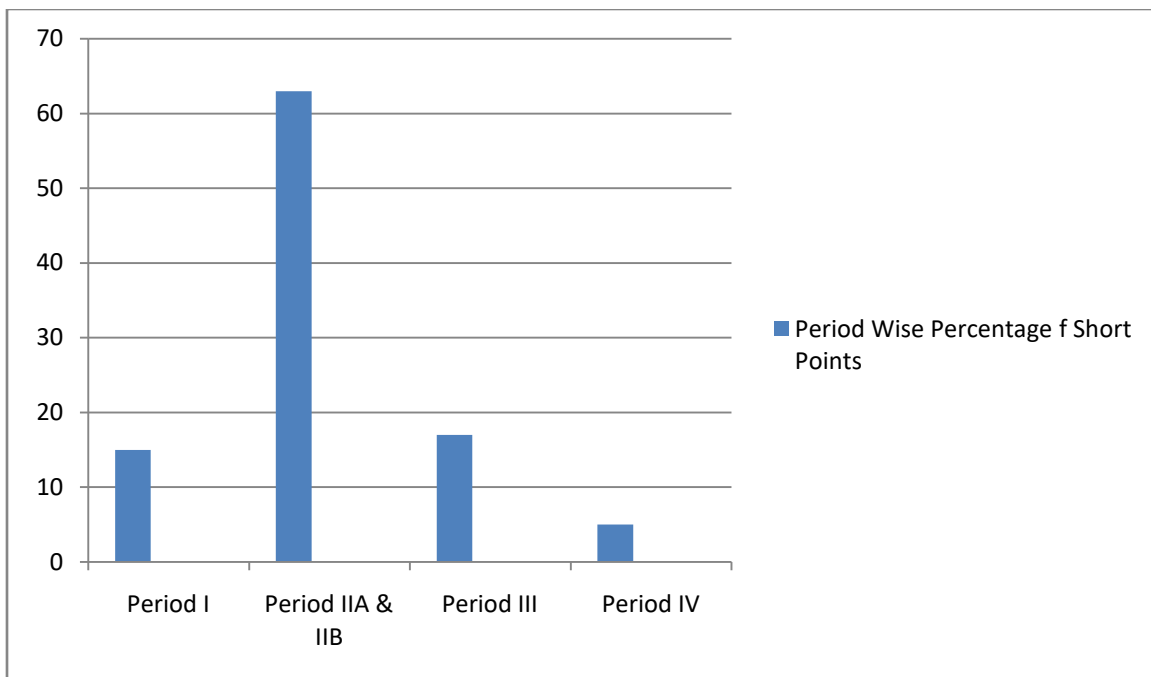
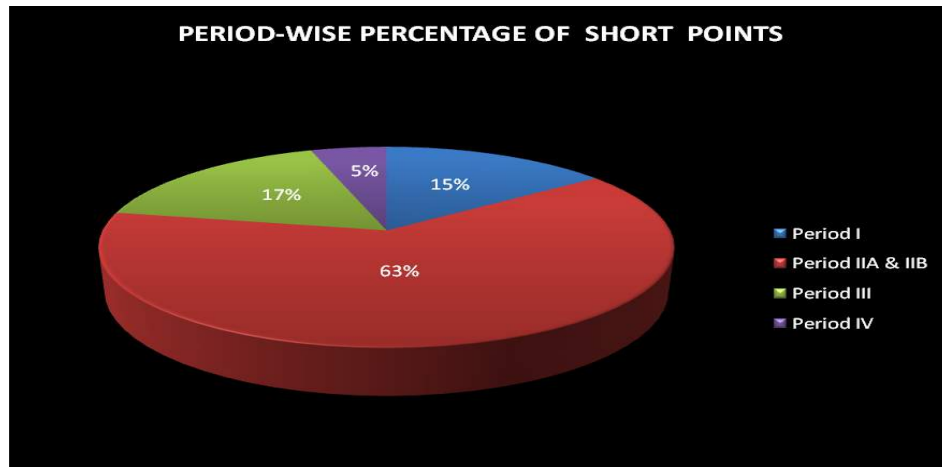
DAGGER TYPE SINGLE EDGED SHORT POINTS

Dagger type short points have the maximum specimens compared to large and medium sized points. Against 178 long points and 109 medium points, there are 202 short points. These short points have the third largest specimens among bone tools after double-tipped points and arrowheads. Their period-wise distribution is as follows:

Period I: 29, Period IIA & IIB: 120, Period III: 32, Period IV: 9, Unstratified and Surface: 12.



Excluding specimens from un-stratified level or surface, the approximate percentage wise break-up of their occurrences is as follows:



Period I - 15%, Period II A & II B - 63%, Period III - 17%, Period IV - 5%.

Among 202 short points, twenty five (25) delicate specimens with their variants have been short listed for illustration owing to their distinctive character of formation, function and manufacturing (Fig. 4.3.7 nos. 1 to 13 and Fig. 4.3.8 nos. 14 to 25).

As regards the fabrication, there is no marked variation between the large and medium type points in shaping the butt, shaft, and point of short points. The main variation is in size. The short sized points, like long and medium points have been fabricated mostly from metapodial bones split along the vertical axis, with proximal or distal end retained as butts. Butts have been trimmed properly in most of the cases, thus shaped well. They are normally broad, and provide an effective grip. The central part of

shafts below butt has been dressed, shaped, smoothened, and ground effectively in most of the cases, sections being irregular, concavo-convex, approaching to flattened oval or oval, rounded, or oval to round. The lateral edges generally taper off sharply, in a few cases smoothly to form points with sharp tips, or else blunted in few cases. The operative parts of shafts are oval, or oval to round and the rounded ones dominate. Butt ends are mostly flat, shafts are fairly sturdy.

Size varies from 34 mm to 80 mm sometimes on the basis of anticipated length; the shortest one is illustrated specimen No. 13, while the largest one is specimen No. 22. In relation to size, operative parts are short, and in very few cases the tipped portions are slender. Laterally, a number of specimens taper off smoothly from the butt end up to the terminal short tip. However, in some specimens shaft tapers off smoothly to the mid-point and then there is a sharp taper to fashion a properly shaped slender point with a sharp or blunt tip.

Surfaces are generally glossy and in a number of specimens glossy to highly glossy. The operative parts, with very few exceptions, are highly glossy. Short sized points required high skill in fashioning identifiable parts such as butt, shaft and points in the appropriate sizes.

From functional view point, the short points could have profitably been used as borers, reamers, or for other such minor drilling purposes. Although in form, these are closely akin to long and medium points, their utility as weapons of war or for hunting the game cannot be substantiated.

However, from the stratigraphical point of view, positioning of the illustrated types or specimens is as follows:

Specimen Nos. 8, 16, and 25 have been unearthed from the Period I, Nos. 1b, 4, 5, 7, 13, 14, 18, 19, 21, 22, and 24 are from various levels of Period II A, Nos. 1a, 2, 9, and 20 are from the early levels of Period II B, Nos. 3, 6, 10, 15, and 17 are from Period III and Nos. 1, 11, 12 and 23 are from un-stratified levels and Surface. The selected specimens are illustrated below.

No. 1: Complete except for a minor break on one face near slender point. Fabricated from a metapodial bone, articular surface has been retained as butt after adequate trimming. Surfaces are properly dressed, smoothed and ground. The inside cavity is prominent. Section of major part of shaft is irregular. The edges taper sharply in operative part to form a slender sharp point flattened oval in section. Surfaces are partially glossy. Length is 57 mm. unstratified

No. 1a: Broken tip, thick and sturdy butt, Fabricated from a metapodial bone (proximal end) split vertically. Surfaces are properly dressed and smoothened. Prominent cavity on inner face and the other face shaped well by whittling. Main part of shaft is nearly concavo-convex in section, operative point rounded and sides taper off sharply towards slender point. Surfaces are partially glossy. Length is 60 mm. Period IIB

No. 1b: Complete, except broken tip. Fabricated out of a metapodial split bone, proximal end has been retained as buttend which is sturdy, properly trimmed and smoothed. Shaft has been dressed and smoothed well and trimming is seen on the convex face. 1/4th of shaft towards operative part is oval in section and the sides taper off sharply to form a point. Surfaces are highly glossy. Length is 62 mm. Period IIA

No. 2: Complete. Flat butt, lateral edges are roughly dressed. The rest of the shaft has been properly dressed, smoothed and ground. Central part of shaft is irregular; concavo-convex in section and 1/3rd portion towards point is oval.. Sides taper off sharply to form a blunt tip. Length is about 67 mm. Period IIB

No. 3: Complete except for broken point. Shaft has been properly dressed and smoothed and ground nicely. Sides are almost straight up to mid-point and taper off sharply from 1/3rd part towards point. Surfaces are highly glossy. Shaft is greyish black in colour. Length is 67 mm. Period III

No. 4: Complete, except for broken tip. Flattish butt shows triangular outline. Surfaces fairly dressed and smoothed. The edges taper sharply from the mid point towards/downwards to form the slender point. Surfaces are highly glossy below mid-point. Length is 55 mm. Period IIA

No. 5: Complete, except for broken tip. The butt has been neatly trimmed and rounded. Shaft nicely dressed, smoothed and ground. Cavity on one face is prominent, laterally well shaped, almost straight except in operative part, where it tapers off sharply to form a point with flattened oval section. Surfaces are glossy. Length is 67 mm. Period IIA

No. 6: Complete, except for broken point. Articular surface roughly dressed and retained as butt. Shaft below the butt has been nicely dressed, smoothed and ground. The section up to mid-point being irregular. The lower part of the tool has been rounded. The lateral edges taper off sharply to form a point. Surfaces are glossy. Length is 63 mm. Period III

No. 7: Complete, roughly trimmed oblique butt. The inner side shows cancellous tissues prominently up to mid-point. Shaft dressed properly and smoothed. The edges have been neatly worked. Section in central part is concavo-convex, and oval towards operative part. Sides taper off sharply from mid-point to form a slender sharp point. Surfaces are glossy. Length is 67 mm. Period IIA

No. 8: Complete, except for broken point. Butt neatly trimmed, natural hollow on one face of the shaft, its major portion concavo-convex in section and rounded towards tip. Sides taper off sharply to form point. Shaft dressed and smoothed nicely. Surfaces below butt are glossy to highly glossy. Length is 62 mm. Period I

No. 9: Complete, except for broken point. It is quite likely that a longer point after a break in the shaft has been converted into a short point. The butt has neatly been finished. Shaft has been dressed and smoothed nicely. Surfaces are highly glossy. Operative part has been rounded, sides taper off sharply below mid-point to form point. Length is about 60 mm. Period IIB

No. 10: Complete, except for broken slender point. Proximal portion roughly dressed and retained as butt. The remaining portion of the shaft has been nicely dressed and smoothed.. Section is irregular and operative part rounded. Length is 70 mm. Period III

No. 11: Complete except for a minor lateral break at the tip. Proximal portion of articular surface of the metapodial bone split vertically and retained as butt; it is flattish and irregular oval in outline. Outer faces poorly smoothed up to mid-point. 1/3rd portion towards operative part is rounded and sides taper off sharply to form a sharp tipped point. Surfaces are partially glossy. Length is 71 mm. Unstratified.

No. 12: Complete, except for broken point. Roughly trimmed sturdy butt with a perforation, partly charred, fashioned out of the proximal end of a metapodial bone split vertically. Dressing and smoothing below the butt is normal. The inside face shows minor cavity. Sides taper off sharply to form point. Major portion of shaft is irregular in section and flattened oval. Slight traces of glossiness due to use. Length is about 71 mm. Unstratified

No. 13: Complete. Flat butt, rounded rectangular in outline. Smoothing and grinding are rough. Sides taper off sharply below mid-point to form blunt point. Operative part is rounded. Surfaces are highly glossy below mid-point. Length is 34 mm. Period IIA

No. 14: Complete. Flat butt, an oval irregular in outline. 1. Roughly dressed and smoothed. The shaft below the butt and above the slender point is triangular in section.

1/3rd portion of shaft towards operative part is glossy, and tempered by charring. Length is about 56 mm. Period IIA

No. 15: Lower end broken. Roughly trimmed, broad and thick buttend. Shaft dressed well, but not properly smoothed and ground. Section in central part is irregularly concavo-convex. Sides taper off sharply from mid-point towards long operative part, which is rounded. Minor traces of glossiness due to use. Length is 62 mm. Period III

No. 16: Complete, Flattish butt, properly trimmed and an irregular oval in outline. Shaft is properly dressed, smoothed and ground. Sides shaped well and taper off sharply to form slender point with an incisive tip. Surfaces are highly glossy. The Section of shaft below buttend and above the rounded slender lower part is rectangular. Length is 63 mm. Period I

No. 17: Complete, roughly trimmed butt, irregular in outline. Not much workmanship is in evidence in dressing and smoothing the shaft, which is Plano-convex in section below the butt, oval to round towards operative part. Lateral margins taper sharply, terminating in a point. Only lower part is glossy. Length is 68 mm. Period III

No. 18: Complete, a highly finished specimen. Distinctively thick and broad sturdy butt. The distal portion of tibia is irregular in outline with duly trimmed high ridges. The broad butt could provide an effective grip. Major portion of shaft has only been marginally dressed, but properly smoothed and ground. Surfaces, are highly glossy. The lateral edges taper off sharply from mid-point to form a sharp point where it is rounded but flattened oval above it for about 9 mm. Length is about 77 mm. Period IIA

No. 19: Complete, except for broken point. Fabricated from longitudinally split metapodial bone. The butt has been trimmed and flattened conical in outline and section. Shaft below the butt is dressed, thinned and ground. Laterally tapers off smoothly to form a point. Shaft from mid-point towards operative part is irregularly rounded. Surfaces below butt are highly glossy. Length is 61 mm. Period IIA

No. 20: Complete trimmed flat buttend and Not much workmanship is in evidence in dressing the shaft and the shaping the lateral margins. Major portion of shaft is concavo-convex in section. Surfaces are slightly glossy. Length is 66 mm. Period IIB

No. 21: Complete, properly trimmed flat buttend. Shaft smoothed and ground, including cancellous tissues. Section below buttend upto mid-point is irregular. Shaft has been neatly rounded from mid-point and sides taper off sharply to form point,

which is blunt. Surfaces are highly glossy. There is a minor facial cut near blunt tip. Shaft has a slightly curved profile. Length is about 70 mm. Period IIA

No. 22: Complete, except for broken tip, roughly trimmed flat ended butt and irregular in outline. Lateral margins are poorly dressed and smoothed up to mid-point. Section below butt is irregular concavo-convex, nearly oval towards operative part. Surfaces are glossy. Sides taper off sharply to form a point. Length is 78 mm. Period IIA

No. 23: Complete, except for broken point. Flat butt, roundedly rectangular in outline and is properly trimmed. Shaft dressed and smoothed well. Sides taper off sharply to form point, tip broken and section below butt and above the lower part is plano-concave and oval towards operative part. Surfaces are partially glossy. Length is 53 mm. Unstratified

No. 24: Complete except for broken point, sufficiently trimmed flat butt and oval in outline. Shaft smoothed and ground properly. Shaft from mid-point towards operative part is oval to round. Sides taper off smoothly to form point. Surfaces are glossy to highly glossy. Length is 53 mm. Period IIA

No. 25: Complete. Fabricated on the distal end of a metapodial bone vertically split and properly smoothed has been retained as butt. Shaft has been ground and is triangular in section up to mid-point, flattened oval towards operative part where sides taper off sharply to form a slender incisive point. Surfaces are highly glossy. Length is 58 mm. Period I

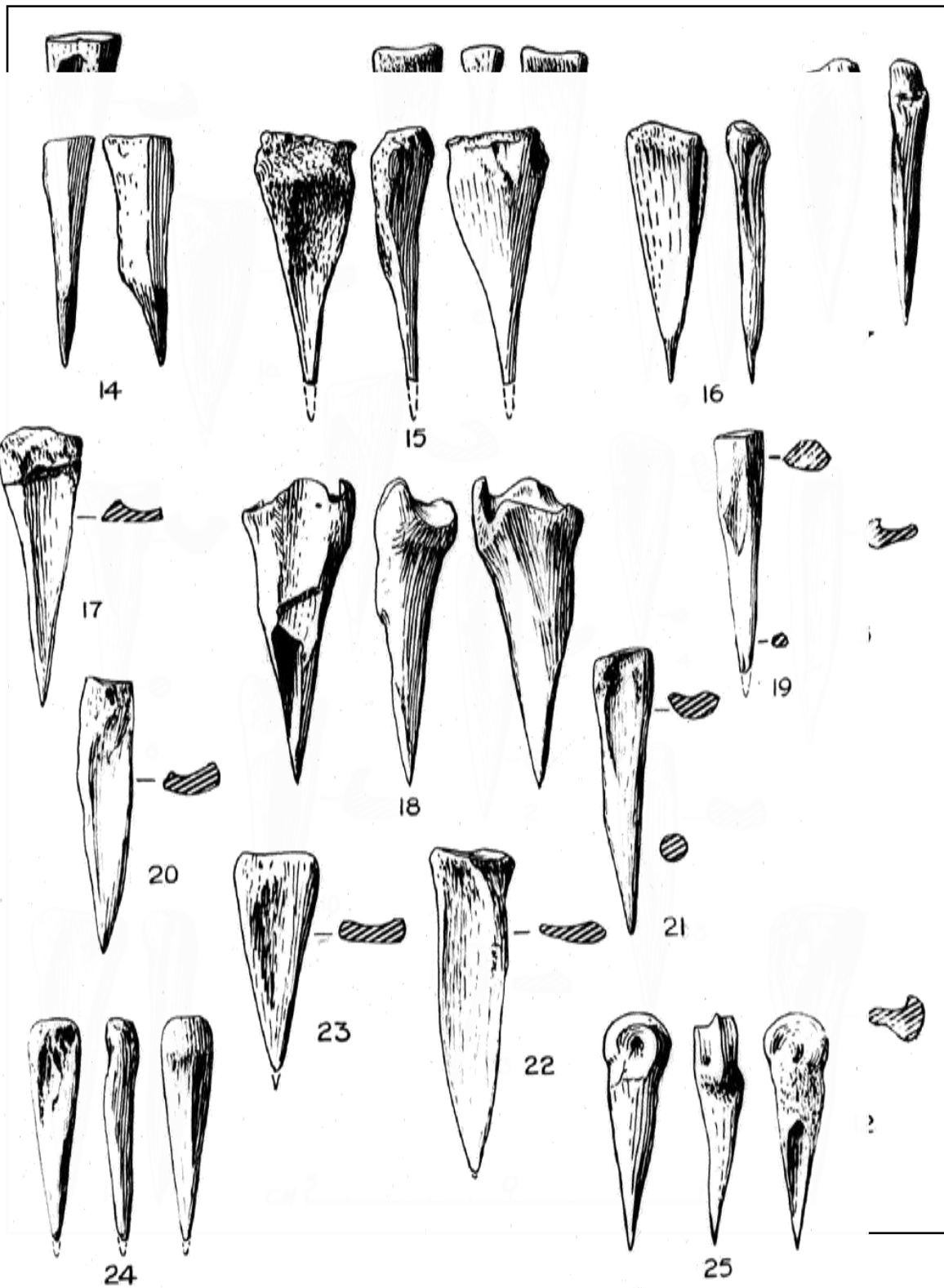


Fig.4.3.7 Dagger type single edged short point

Fig.4.3.8 Dagger type single edged short points

AWLS

SINGLE EDGED POINTS

Burzahom excavation has yielded eighty-eight (88) pointed tools in the category of awls, obviously this number is the smallest in the class of pointed instruments like needles with eyes, double-tipped points (knitters and dress fasteners), and dagger type points (long, medium and short sized) from different cultural levels. The maximum workmanship in fashioning awls is noticed in the fabrication of operative part, which is generally thin with fairly sharp tip, in some examples incisive one. For this purpose, the operative part of the shaft has been adequately whittled, scraped, effectively smoothed and grounded and generally rounded. Surfaces in this part are either glossy or highly glossy due to use. In a few cases, the operative parts are curved in profile. For securing the slender and sharp tips, the edges taper generally sharp from the mid point downwards wherever the main part of the shaft are comparatively thin, the edges taper smoothly right from the butt end to form the slender sharp operative parts to the incisively sharp tips.

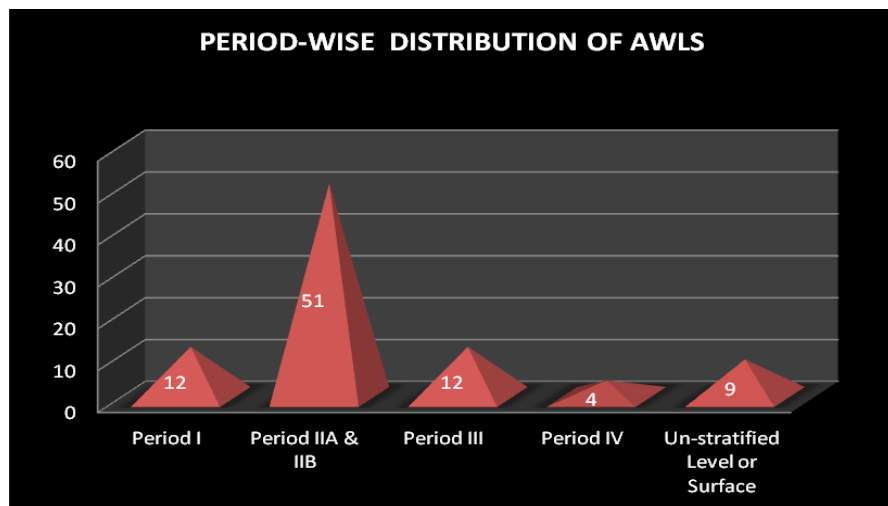
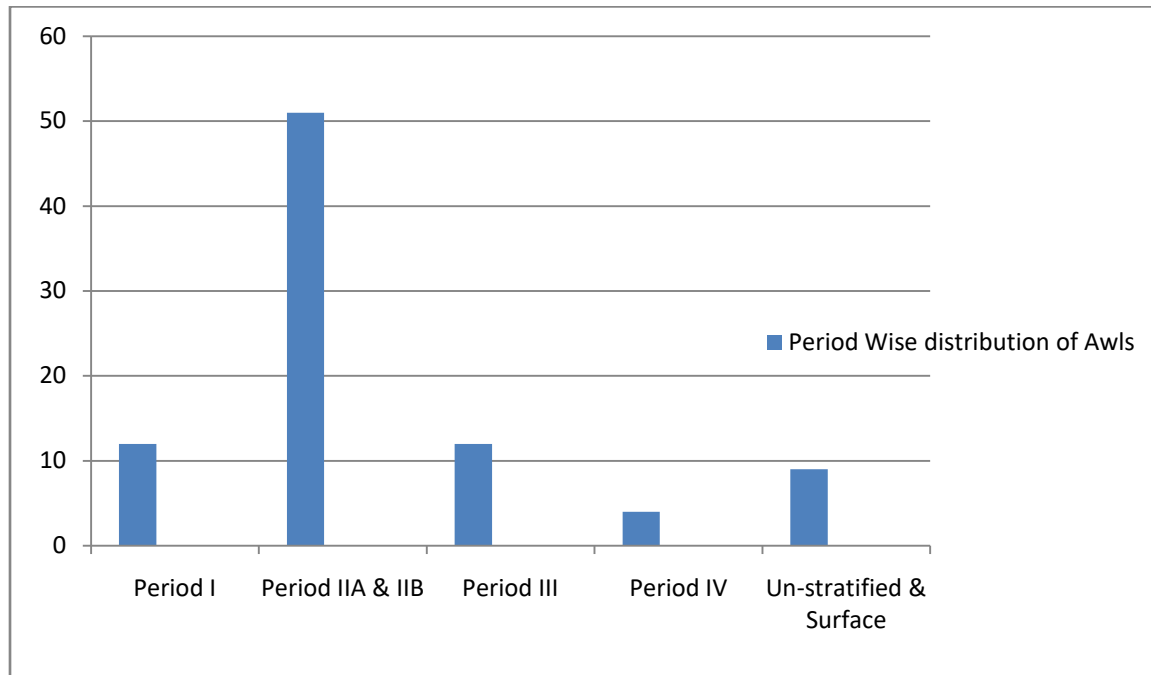
The butt ends, in some examples, are fully trimmed the end being flat, rounded or oblique and the articular surface of bone is retained with rough trimmings to provide a grip. With a few exceptions, which have been effectively shaped, smoothed, and ground. Functionally, some tools having sturdy butts and can properly be handled; others have flat, generally thin or oblique trimmed butts, cannot afford an adequate grip. The sizes vary from 142 mm to 43 mm in length. Among the total assortment, seventeen (17) tools with their variations have been illustrated (Fig. 4.3.9 nos. 1 to 4f, Fig. 4.3.10 nos. 5 to 11, and Fig. 4.3.11 nos. 12 to 17).

In terms of size the largest awl is specimen No. 4 and the shortest one is No. 4d in the illustrated examples. Some specimens are small with rather thin shafts, and it is doubtful if these could have been used very effectively.

Stratigraphically, Nos. 2a, 4b, 7, 7a, 8, 9, 10, 12, and 17 are from Period I, Nos. 1, 1b, 2b, 4, 4e, 4f, 5, 6, 7b, 9a, 9b, 13, 14 and 15 are from different levels of Period II A, Nos. 4c, and 4d, are from Period II B, Nos. 3 and 16 are from Period III, No. 4a is from Period IV, and Nos. 1a, 2, 8a and 11 are from Un-stratified levels or Surface.

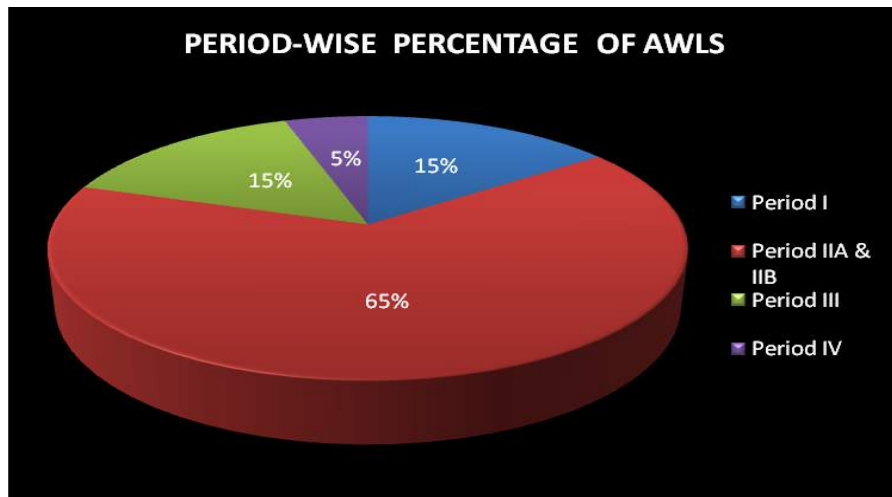
The period-wise break-up of total number of awls is as follows:

Period I: 12, Period IIA & IIB: 51, Period III: 12, Period IV: 4. Un-stratified and Surface - 9.



Excluding specimens from un-stratified levels, period-wise approximate percentage of their occurrence is as follows:

Period I: 15%, Period IIA & IIB: 65%, Period III: 15%, Period IV: 5%.



The assorted examples are illustrated below:

No. 1: Complete, except for broken slender point.. Shaft roughly whittled and scraped, unevenly rounded and ground. Almost straight sided, but tapers off smoothly near operative part to form slender operative point. Length is about 133 mm. Anticipated length is about 135 mm. Period IIA

No. 1a: Complete, except for broken slender operative part. Shaft roughly dressed and scraped. Unevenly rounded, section between mid-point and slender portion is flattened oval. Surfaces are partially glossy. Length is 133 mm. Anticipated length is 136 mm. Unstratified

No. 1b: Complete, laterally trimmed near flat buttend. The upper part of the tool is rectangular in section. Below this, the shaft has been rounded, the edges terminating in sharp points. . Surfaces are highly glossy. Length is 105 mm. Period IIA

No. 2: Complete. Flat butt, shaft dressed, smoothed, and ground unevenly rounded in section. Surfaces are highly glossy. The thickest part is near mid-point. Sides taper off sharply towards operative part to form a slender incisive point. Length is 89 mm. Unstratified

No. 2a: Complete, except for broken slender point. Butt obliquely trimmed. Major part of shaft towards butt end is irregular in section and rounded near the operative point. Sides taper off sharply to form sharp tip. Surfaces are glossy. Length is 78 mm. Anticipated length is 83 mm. Period I

No. 2b: Complete. Butt end almost obliquely trimmed, shaft is properly dressed and smoothed. Section near butt end is almost a concavo-convex with a slightly curved

profile towards operative part and sides taper off smoothly to form a slender sharp tip. Surfaces are glossy. Length is 107 mm. Period IIA

No. 3: Complete. Buttend is thick, rounded and obliquely trimmed. Below this, shaft has been thinned down, smoothed ground and rounded with sides tapering off smoothly to form a long slender operative part and fairly sharp tip. Length is 94 mm. Period III

No. 4: Complete. Buttend roughly trimmed with bits of traces of cancellous tissues. Shaft has been dressed nicely, ground and rounded. Sides taper off smoothly to form slender operative part and sharp tip. Length is 142 mm. This is the largest specimen in the category of awls. Period IIA

No. 4a: Complete. Nicely trimmed flat butt. The section approaching rounded rectangular in upper part of the tool Shaft dressed well, ground and rounded in section. It has a curved profile. Surfaces are glossy, but for minor scratches. Sides taper off smoothly to form long slender incisive operative part. Length is 128 mm. Period IV

No. 4b: Complete, a smaller variant of type 4, roughly trimmed thick butt with nearly oval section. Shaft dressed well with rounded section and sharp point. Surfaces are partially glossy. Length is 64 mm. Period I

No. 4c: Complete, properly trimmed thick flat buttend, round in section. Shaft round in section is well ground, has a slightly curved profile, and operative sharp point. Surfaces are glossy. Length is 136 mm. Period IIB

No. 4d: Complete. The smallest illustrated specimen, roughly dressed shaft, section being irregular. Operative part is thin, slightly curved and point being sharp. Length is 43 mm. Period IIB

No. 4e: Complete, flat butt. Shaft roughly dressed, unevenly rounded. Section is almost quadrilateral near mid-point, incisive operative point. Surfaces are partially glossy. Length is 53 mm. Period IIA

No. 4f: Complete, except for broken point. Articular surface duly trimmed is retained as butt. Shaft nicely smoothed and ground, its 2/3rd portion towards operative part is rounded in section, and concavo-convex towards butt end. Surfaces are glossy. Length is 92 mm. Anticipated length is 99 mm. Period IIA

No. 5: Complete, obliquely trimmed broad butt. Shaft properly smoothed and ground. It is concavo-convex in section up to mid-point, flattened oval towards operative part,

with neatly rounded pointed end. Sides taper off smoothly up to mid-point, then sharply to form a long and incisive point. Surfaces are glossy to highly glossy. Length is 94 mm. Period IIA

No. 6: Complete, except for broken tip. Featureless buttend irregular in form and outline with cancellous tissues sticking out on one face in the upper part of the tool. Remaining part of shaft is poorly dressed and thinned down, and has an irregular section but for neatly rounded tip. Surfaces are partially glossy. Length is 105 mm. Anticipated length is 107 mm. Period IIA

No. 7: Complete, roughly trimmed almost rounded butt. Shaft unevenly rounded excepting 1/3rd portion of operative part, which is pretty slender, rounded, and slightly curved in outline with a blunt point. Surfaces are partially glossy. Length is 133 mm. Period I

No. 7a: Incomplete, the upper part of the tool is broken. Shaft dressed well and smoothed, rounded from mid-point towards operative part, sides taper off sharply to form a sharp and slender point. Surfaces are glossy. Length is 103 mm. Period I

No. 7b: Complete. Obliquely trimmed butt, shaft towards butt end unevenly dressed and rounded and partially smoothed, the operative part is nicely rounded and grounded well; sides taper off sharply to form a sharp point. Surfaces are highly glossy in operative part, and partially glossy above it. There are a few deeply incised lines near the tip, indicative of rotary motion during use. Length is 119 mm. Period IIA

No. 8: Complete, flat butt. Shaft roughly dressed, section is triangular except for the 1/3rd of operative part, which is rounded and smoothed. Surfaces are glossy from mid-point towards operative part; sides taper off sharply in this part to form a slender incisive tip. Length is 125 mm. (Found within a Dwelling Pit). Period I

No. 8a: Complete except for broken tip. Truncated butt duly squared off. Shaft has been nicely dressed, smoothed and grounded effectively, section being round. Surfaces are glossy. Sides taper off smoothly to form a long point. Length is 110 mm. Anticipated length is 113 mm. Unstratified

No. 9: Complete, roughly trimmed. Shaft nicely dressed and grounded, irregularly oval from the butt end up to mid-point, and rounded towards operative part, sides taper off sharply to form a slender incisive tip. Surfaces are glossy. Length is 100 mm. Period I

No. 9a: Complete, roughly trimmed irregular butt. 2/3rd part of shaft towards butt end is unevenly dressed, and has a concavo-convex section, and 1/5th portion towards

operative part is smoothed and rounded. Surfaces are glossy, operative part highly glossy. Sides taper off sharply from mid-point to form a slender point terminating in a sharp tip. Length is 92 mm. Period I

No. 9b: Complete. Irregularly trimmed butt, shaft is Plano-convex in section towards butt end, and rounded towards operative part. It is smoothed and grounded, surfaces are highly glossy. Grinding striae are well marked. Length is 79 mm. Period IIA

No. 10: Complete, except for a minor vertical break near butt end. Shaft has a thin curved profile. Its central part is rounded rectangular in section, and operative part slender and sharp. Slight traces of glossiness due to use. Length is 80 mm. Period I

No. 11: Incomplete, operative part is broken. Flat butt, shaft nicely dressed, rounded, smoothed from mid-point towards operative part, but roughly fashioned towards butt end. Surfaces of rounded part are glossy. Length is 89 mm. Anticipated length is 103 mm. Unstratified

No. 12: Incomplete, operative slender part is broken. Roughly rounded butt with cancellous tissues retained in 1/3rd portion of the tool. Surfaces smoothed, effectively grounded and considerably thinned and rounded from mid-point, when sides taper off sharply to form a slender point. Length is 85 mm. Anticipated length is 98 mm. Period I

No. 13: Complete, except for broken slender tip. It is one of the few specimens with a broad butt, measuring 22 cm wide, roughly trimmed. Shaft properly dressed and smoothed, irregular in section towards butt end, .Surfaces are partially glossy. Length is 107 mm. Anticipated length is 115 mm. Period IIA

No. 14: Complete, roughly and obliquely trimmed butt. Shaft is curved in outline. The inner face is roughly dressed and marked concave upto the mid point, while the outer face is smooth. The shaft has been roughly rounded below the mid point. The tool could have been gripped well as an awl, because of the curved form Sides taper off sharply to form a sharp point. It is a sturdy specimen. Length is 106 mm. Period IIA

No. 15: Complete, fabricated from an antlers, roughly trimmed, thick wide butt, which could provide an effective grip. The lateral edges have been roughly dressed upto the mid point and sharply taper below it to form the operative part with blunt tip. The shaft has been thinned below the mid point and is oval in section in the upper part. . Surfaces are highly glossy in the lower part. Length is 108 mm. Period IIA

No. 16: Complete. Roughly trimmed 18 mm broad butt; , remaining part, roughly dressed and smoothed. Section below butt is concavo-convex and conical to round

towards operative part terminating in a sharp point. Surfaces are partially glossy. Length is 87 mm. Period III

No. 17: Complete, sturdy and broken near butt end. Butt rounded in outline and laterally trimmed. Shaft has been properly dressed, smoothed and grounded. Surfaces are glossy, operative part highly glossy. Sides taper off sharply from mid-point terminating in a slender sharp point. Length is 93 mm. Period I

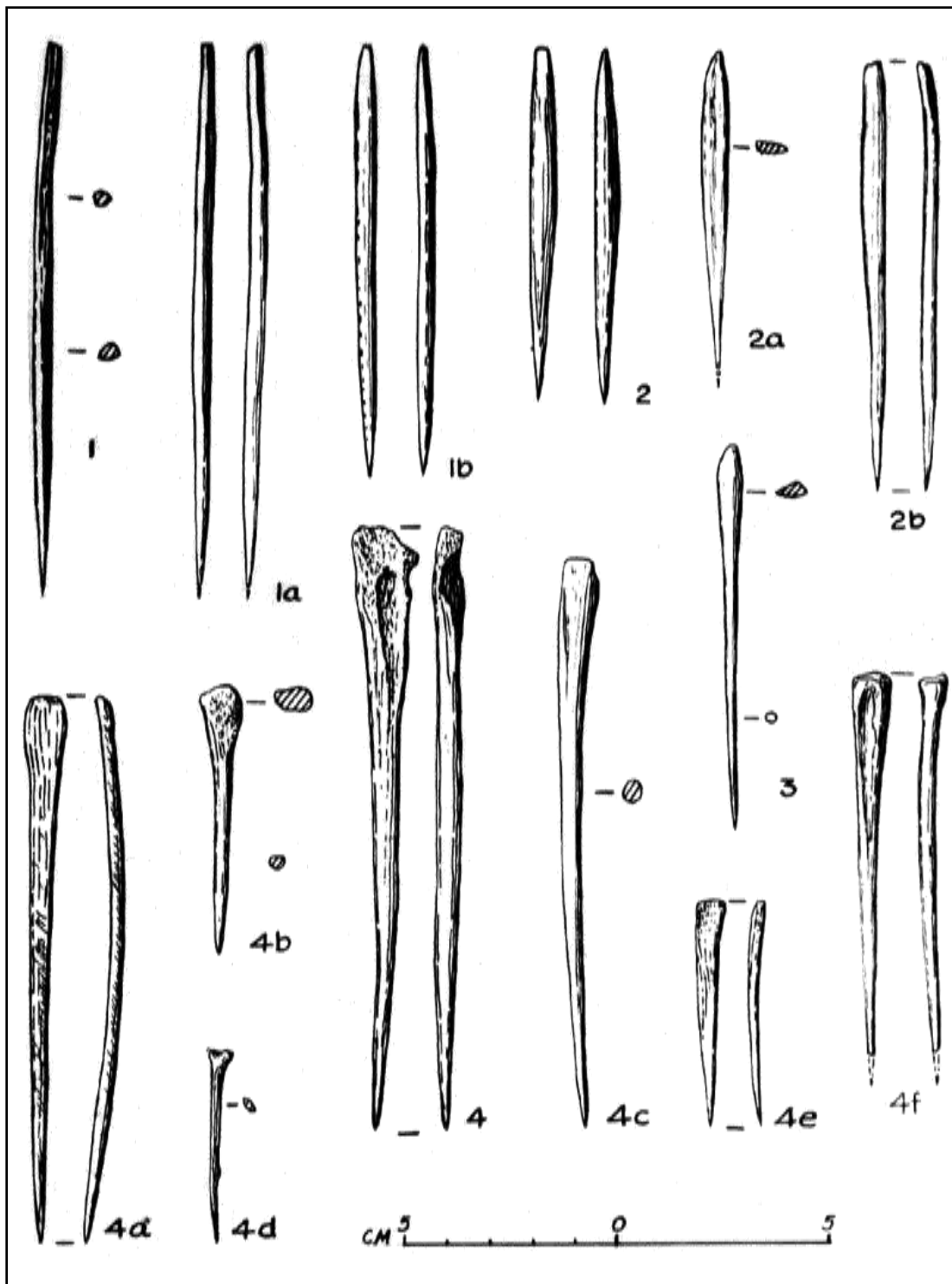


Fig.4.3.9 Single edged point (Awls)

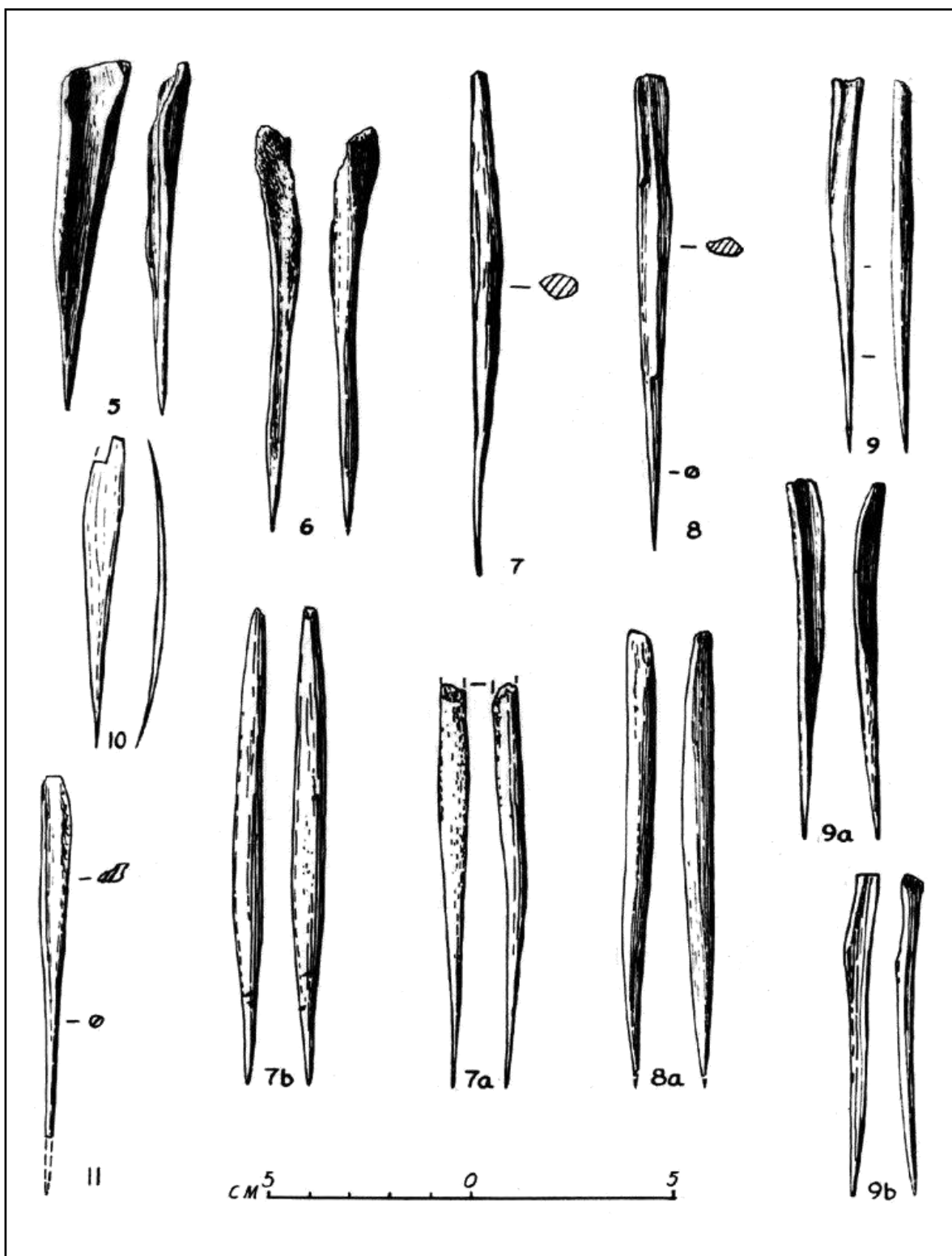


Fig.4.3.10 Single edged point (Awls)

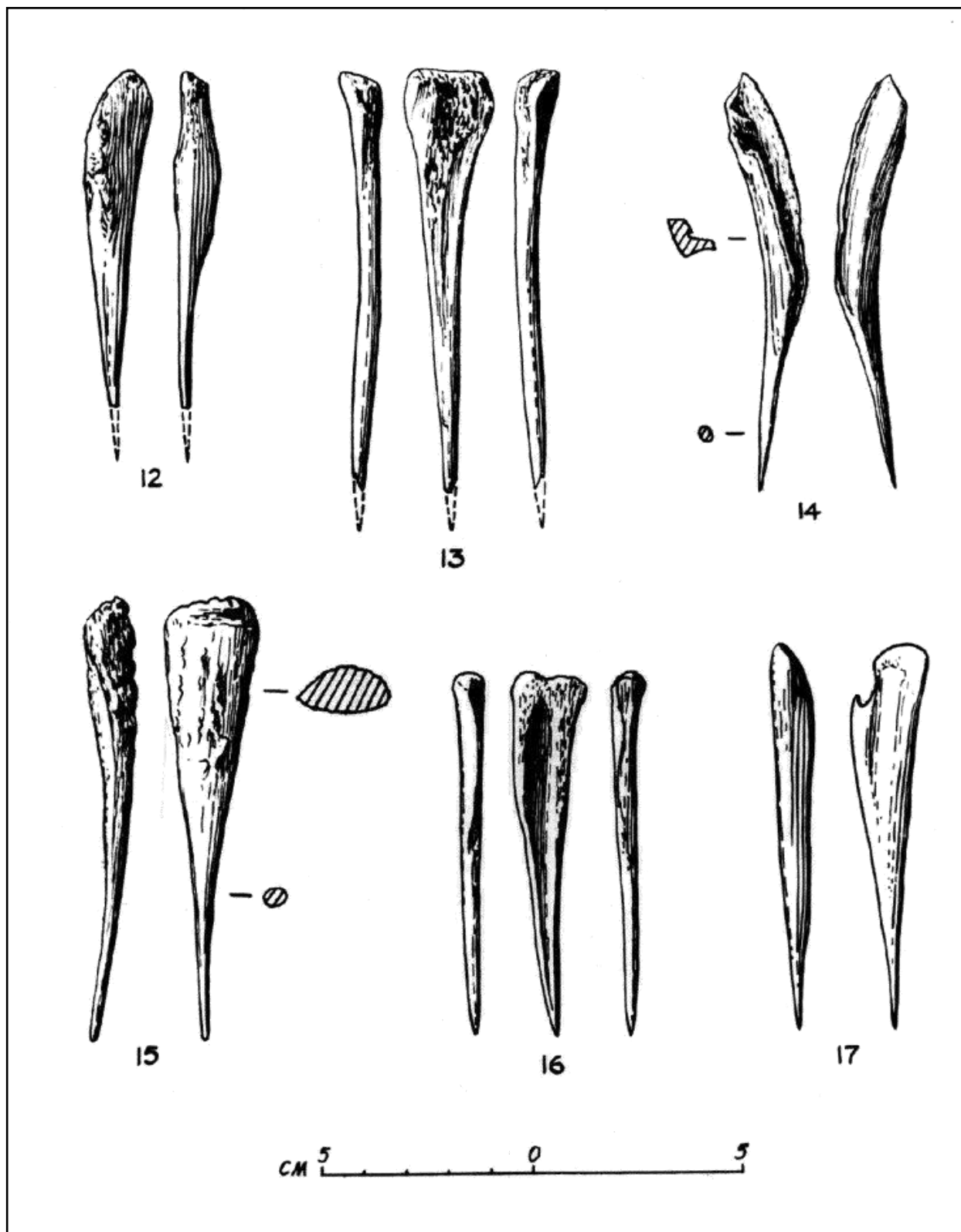


Fig.4.3.11 Single edged point (Awls)

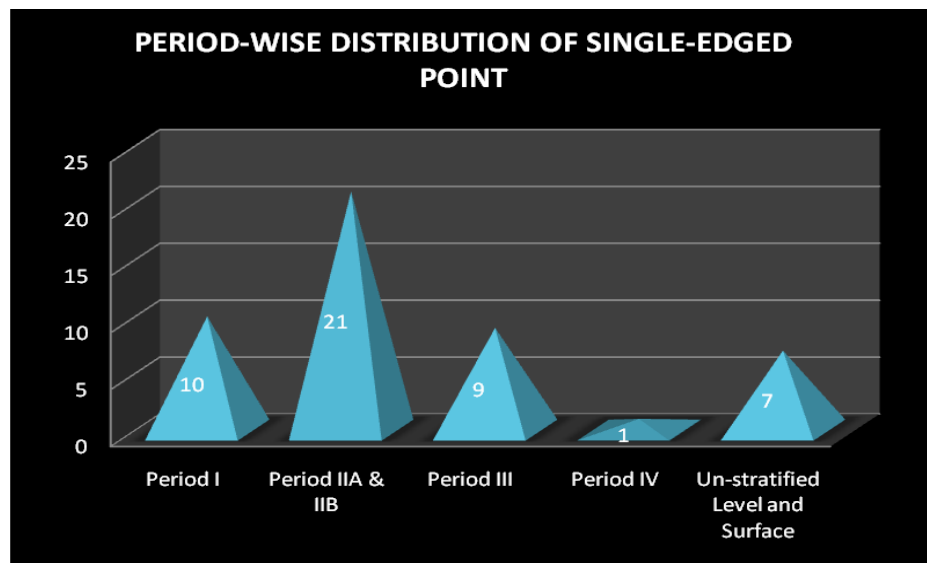
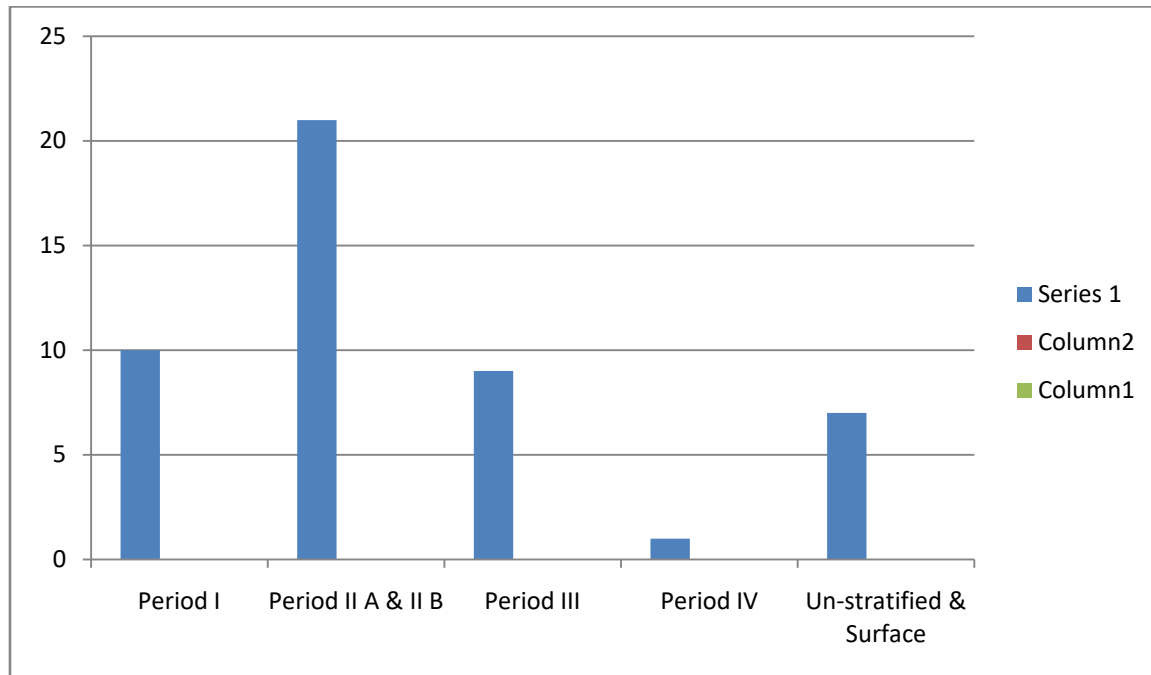
SKIN CUTTERS AND SLICERS

SINGLE EDGED POINTS

The skin cutters from Burzahom form a distinct category amongst bone tools. In form and fabrication, with minor variations, these are somewhat akin to dagger type of large and medium points. With the exception of few fine specimens, not much workmanship is in evidence in fabricating the butt, shaft, and working edge of most of the tools. Even the smoothing and grinding are marginal. These seem to be rough and ready tools for cutting skins and slicing through flesh. These tools have generally been fabricated from short or long bones, split along the vertical axis; the articular surfaces with minor trimming have been retained as butts, which provide a secure grip. These tools are quite sturdy, as such could be profitably employed for the intended purposes. Their lateral margins taper off smoothly towards operative end to form a knife like working edge, which is rather blunt and broad compared to large and medium points. Surfaces are partially glossy or non-glossy.

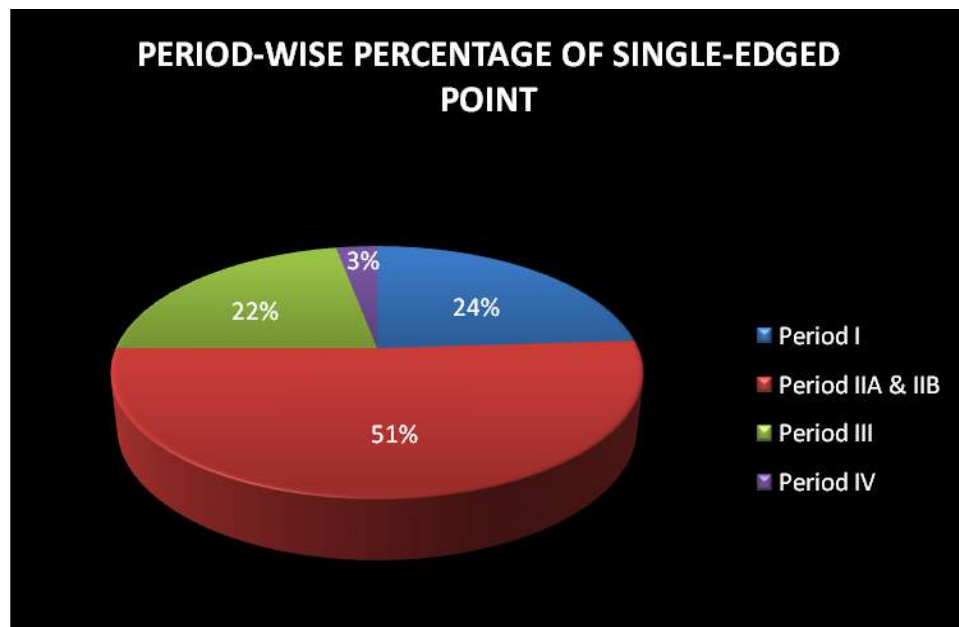
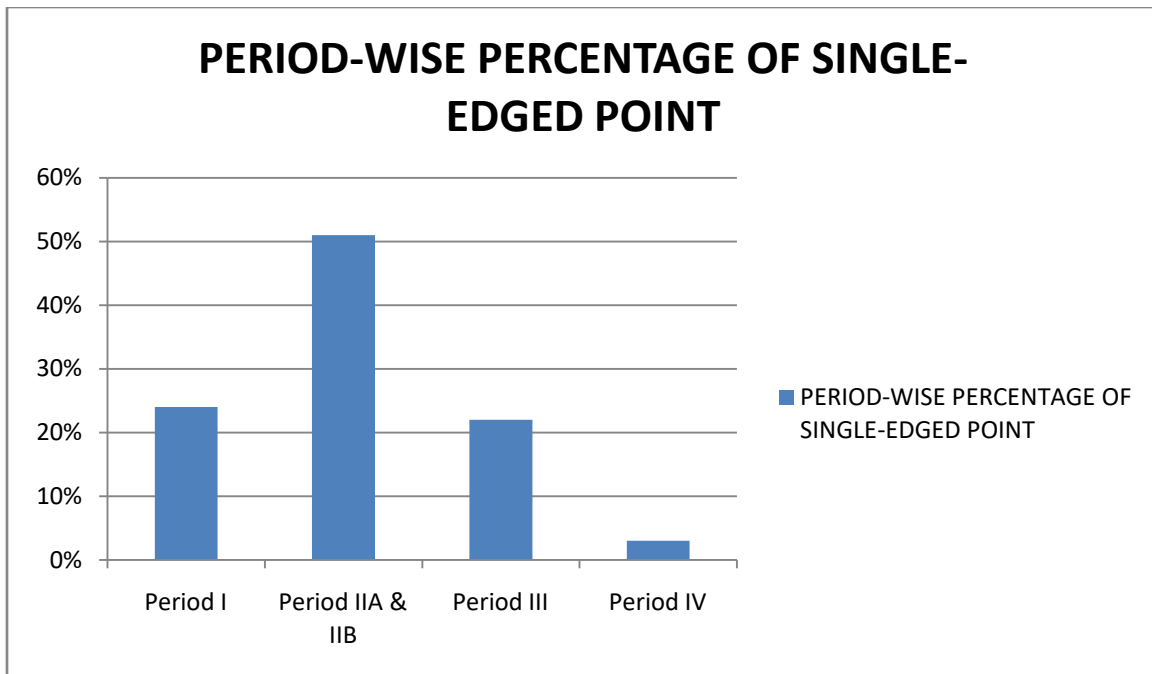
Forty eight (48) tools in this category have been recovered from the excavations and out of them twelve (12) remarkable specimens have been illustrated (Fig. 4.3.12 nos. 1 to 6 and Fig. 4.3.13 nos. 7 to 12). The period-wise distribution total tools are as follows:-

Period I: 10, Period IIA & IIB: 21, Period III: 9, Period IV: 1, Un-stratified and Surface: 7.



Excluding specimens from Un-stratified levels or Surface, the period-wise percentage of their occurrence works out as follows:-

Period I: 24%, Period IIA & IIB: 51%, Period III: 22%, Period IV: 3%.



From the stratigraphical point of view the illustrated specimens Nos. 6, 7, 8, 9, 11 have been exposed from the Period I, Nos. 1, 2, 2a, 3, 10 are from the various levels of Period IIA, No. 5 is from the Early levels of Period IIB, while No. 12 is from Period III, and No. 4 is from Un-stratified Level or Surface.

No.1: Fabricated from vertically split metapodial bone along its longitudinal axis, roughly trimmed stocky articular surface retained as butt. Dressing, trimming and smoothing are poor.. Oblique working edge, partially convex in outline has been secured by whittling on either face, thus reducing the thickness and presenting a bevelling effect. Working edge is nicked due to use hence not very sharp. No traces of glossiness. Length is 82 mm. Period IIA

No. 2: Complete. This is the smallest specimen. Butt is stocky, roughly trimmed on both the faces, No smoothing is in evidence, except for operative end of one face. Lateral edges are roughly fashioned and tapered off to have an oblique working edge. Minor traces of glossiness are visible. Length is 60 mm. Period IIA

No. 2a: Complete, so far the best specimen from Burzahom. Fabricated from a longitudinally split bone, proximal end, roughly trimmed, has been retained as butt. Shaft dressed and partially smoothed. Its length suggests proper manipulation in relation to its functional utility. Some workmanship is in evidence in fabricating lateral margins. Working edge is sharp, oblique and partially curvilinear in outline. Surfaces are glossy except at the buttend. Length is 84 mm. Period II

No. 3: Complete. Operative part has been secured by lateral oblique whittling and subsequent smoothing. Working edge is slightly blunt, flattish, and glossy. Buttend is irregular and roughly trimmed. The section of the central part of the shaft is concavo-convex in section. Surfaces are glossy. Length is 115 mm. Period IIA

No. 4: Complete and sturdy. Roughly trimmed articular portion has been retained as butt. Shaft roughly dressed and partially smoothed. Surfaces are partially glossy. The working edge is knife like and sharp, secured by whittling. Length is 134 mm. Unstratified. The inside cavity is prominent and the unstratified central part is concavo-convex in section.

No. 5: Complete, except for a minor break in working edge. Articular surface of bone split along vertical axis has been roughly trimmed and retained as butt. Shaft is dressed, smoothed and approximately concavo-convex in section. Surfaces are glossy. Length is 126 mm. Period IIB

No. 6: Complete. Butt roughly trimmed, articular surface retained as such. Shaft roughly dressed, specifically the lateral edge. and the section is almost concavo-convex... Working edge is knife like, secured by minor lateral cuts and whittling. Length is 106 mm. Period I

No. 7: Complete except for a fracture in middle part, irregular flat butt and roughly dressed shaft. Knife like edge secured by lateral as well as vertical whittling and smoothing, surfaces in this part being highly glossy. Length is 110 mm. Period I

No. 8: Incomplete. Butt end broken, shaft dressed and smoothed well. Sides taper off smoothly to form working edge which is slightly blunt and flattish. Shaft is concavo-convex in section towards butt end, and flattened oval towards operative part. Face with natural hollow is partially glossy, the other one is glossy. Length is 83 mm. Period I

No. 9: Complete. Fabricated from split bone of goat, proximal end, duly trimmed and rounded, has been retained as butt. Hollow face bears prominent cavity. Shaft dressed, smoothed and grounded nicely. Sides taper off smoothly to form working edge, which is straight and blunt. Shaft is concavo-convex in section, and flattened oval towards working end. Surfaces are partially glossy. Length is 75 mm. Period I

No. 10: Complete, knife like appearance. Fabricated from a vertically split bone, proximal portion retained as butt is duly trimmed and shaped. Shaft, slightly curved in profile, nicely dressed and smoothed, towards operative part it is triangular in outline and trapezoidal in section. Surfaces are highly glossy. Working edge is sharp. Length is 78 mm. Period IIA

No. 11: Complete except for broken working edge. Butt is roughly trimmed with traces of cancellous tissues on inner face. Shaft roughly dressed and partially smoothed, its operative part curved in outline. Slight traces of glossiness due to use. Length is 100 mm. Period I

No.12: Complete. Shaft roughly dressed. No workmanship is in evidence in fashioning buttend, which is roughly trimmed and flattened.. Working edge is deeply nicked due to use, hence blunt. Surfaces are partially glossy. Length is 142 mm. Period III

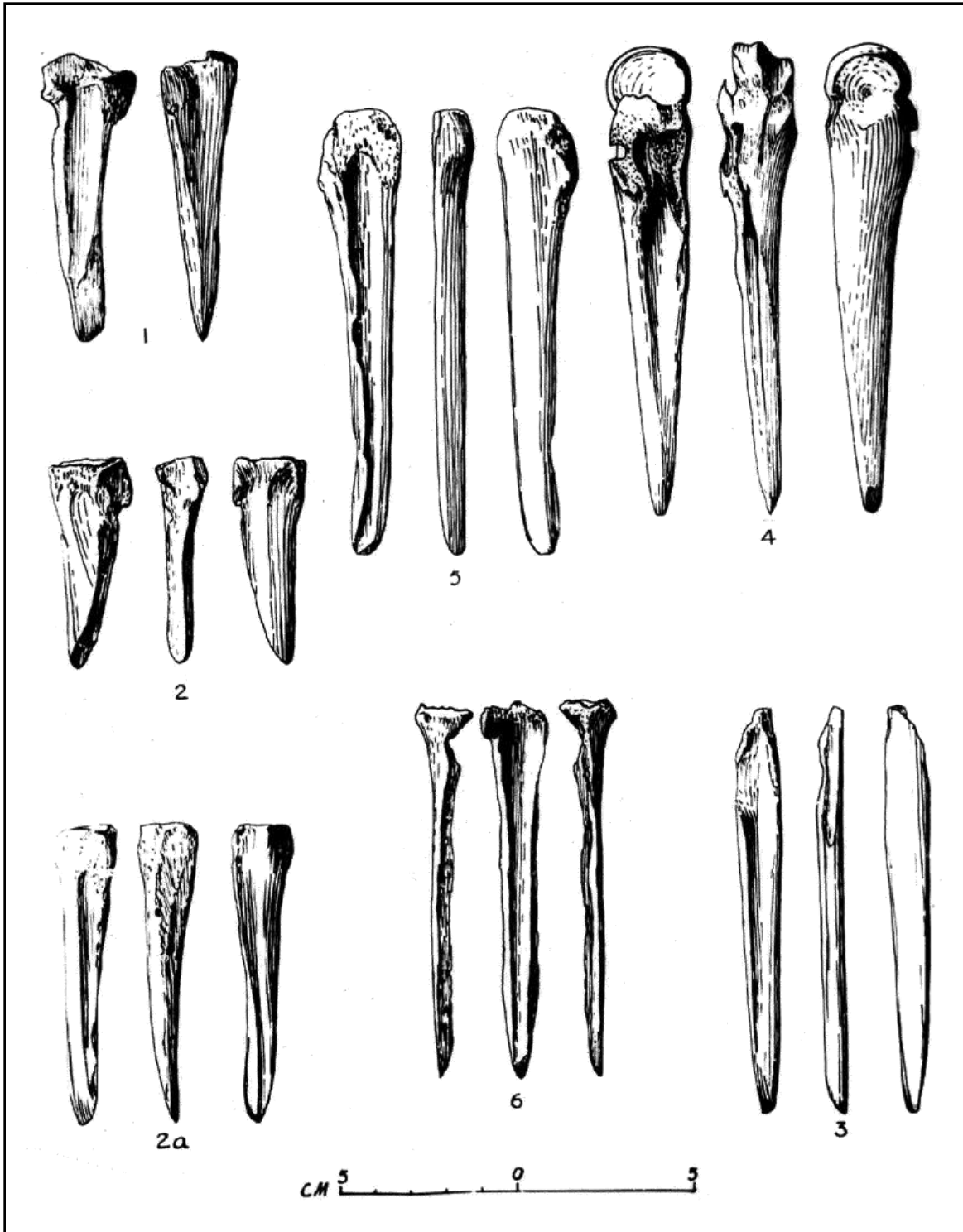


Fig.4.3.12 Single edged point (skin cutters and slicers)

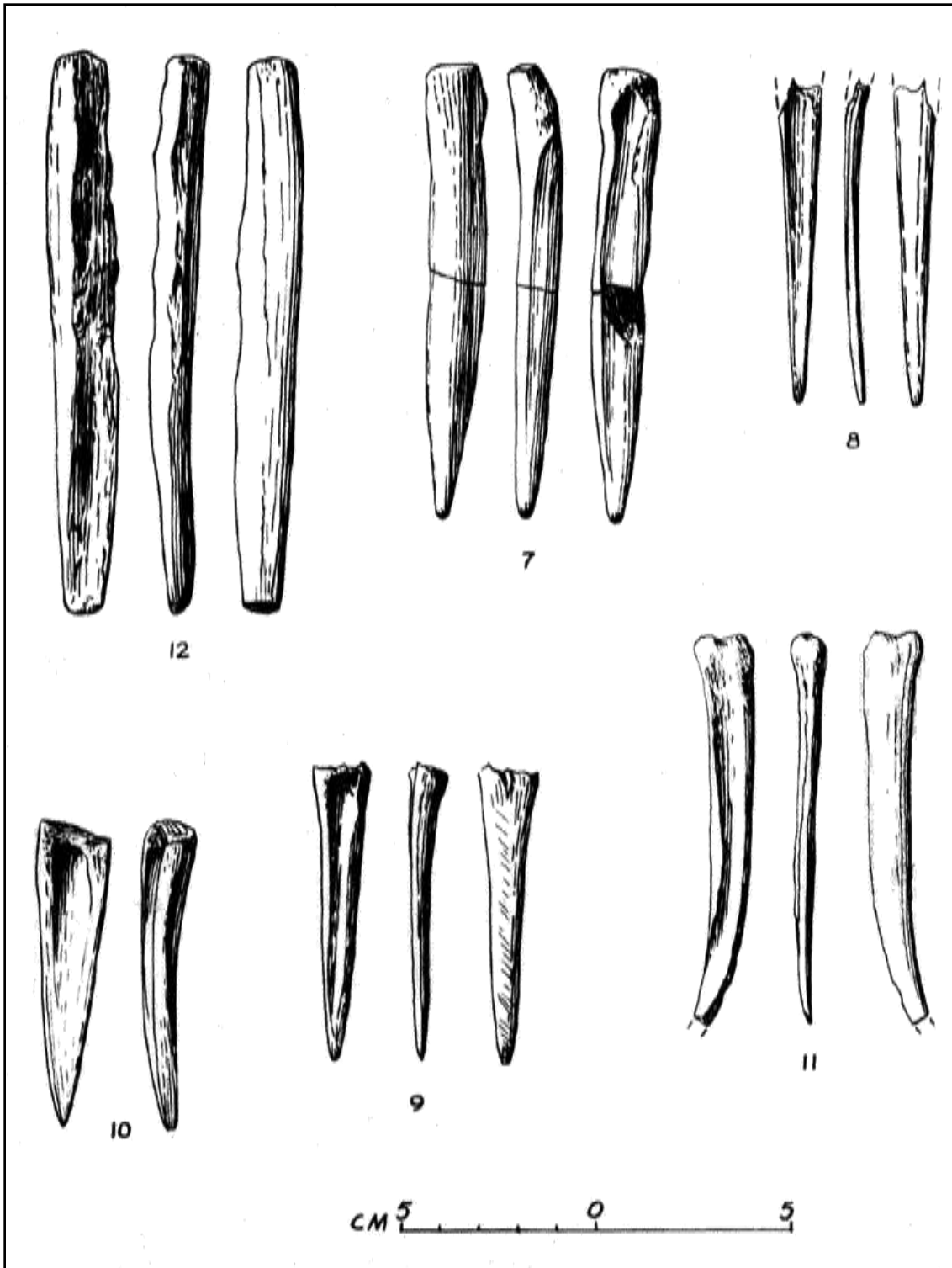


Fig.4.3.13 Single edged point (Skin cutters and slicers)

DOUBLE-TIPPED POINTS (KNITTERS)

The double-tipped points from Burzahom excavation form a category by themselves, hence treated under a separate group. These knitters have the maximum specimens amongst the bone tools and three hundred and sixty (360) specimens have been recovered, out of which eight (8) excellent types with their sub-types have been listed for illustration (Fig. 4.3.14 nos. 1 to 3b and Fig. 4.3.15 nos. 4 to 8), depending upon the formation of points and varied fabrication of the shafts.

Their form, fabrication and size clearly indicate that these could not have been used as pins. The tips of these points have oblique cuts which seem to be intentional, and may have been functionally useful. These oblique cuts secured by lateral whittling near the points in few cases present a bevelling effect as may be observed in illustrated nos. 1a, 1b, 2, 3, 3a, 3b, 4b, 5, 5a, 7, and 7a. Workmanship in relation to dressing, smoothing and grinding is quite good in some specimens, in others poor. The shafts have been unevenly dressed, their surfaces are rough; in section they are rounded neatly or irregularly, in few cases oval, flattened oval, rectangular, rounded-rectangular, irregular in section. Some shafts have a curved profile. The points are sharp or nearly sharp so in a few cases only, but generally these are stocky, rounded and flattish. The surfaces are highly glossy in nos. 1, 4b, and 7, glossy in nos. 1a, 2, 2b, 7a, and 8, partially glossy in nos. 1b, 4a, 5, and 6, and non glossy in nos. 2a, 3, 3a, 4, 4c, and 5a; nos. 1b, 3, 3a, 3b, 4, 5, and 5a, seem to have been fabricated from rib fragments.

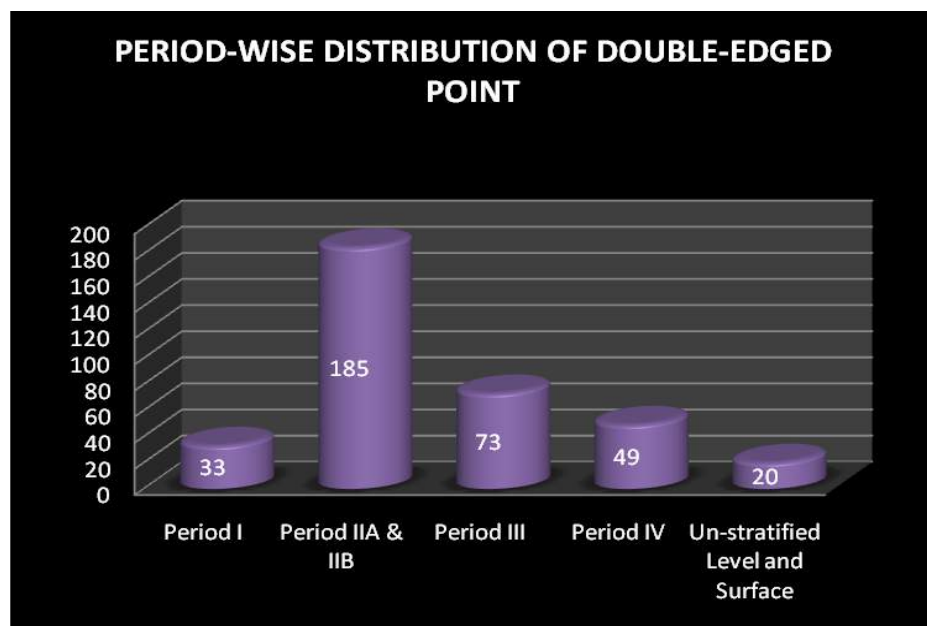
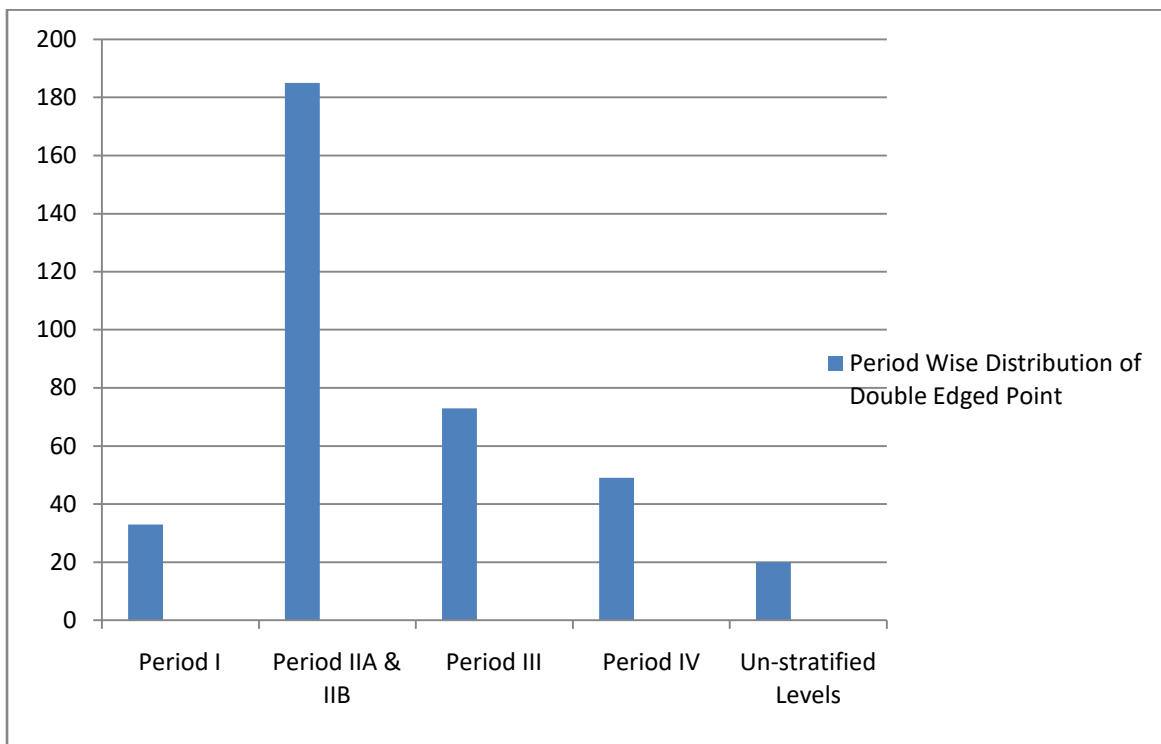
The largest specimen no. 1 is 174 mm long, and the shortest is no. 2, which is 77 mm in length. It is presumed that the double-tipped points were most probably used as knitters. This is based on modern analogies in vogue in Kashmir, where *Kani Shawls* locally known as '*Jamwar Shawls*' are woven with double-tipped wooden points. These shawls are the costliest ones as they are the best quality product in design and fabric woven with wooden points; only skilled artisans with long family traditions produce them.

In these shawls, the design and the weave are simultaneous, by virtue of which the design is woven into the fabric. Such shawls are special marriage gifts. It is also quite likely that some of the double-edged points with a shorter size might have been used as dress fasteners.

Among the eight types, stratigraphically specimen Nos. 2b and 4b have been unfolded from Period I, Nos. 1b, 3, 4a, 5 and 7 are from the Period IIA, while 1, 2, 2a, 4, 7a, and 8 are from the Period IIB, Nos. 3a, 3b, 4c, and 5a are from Period III, No. 1a from

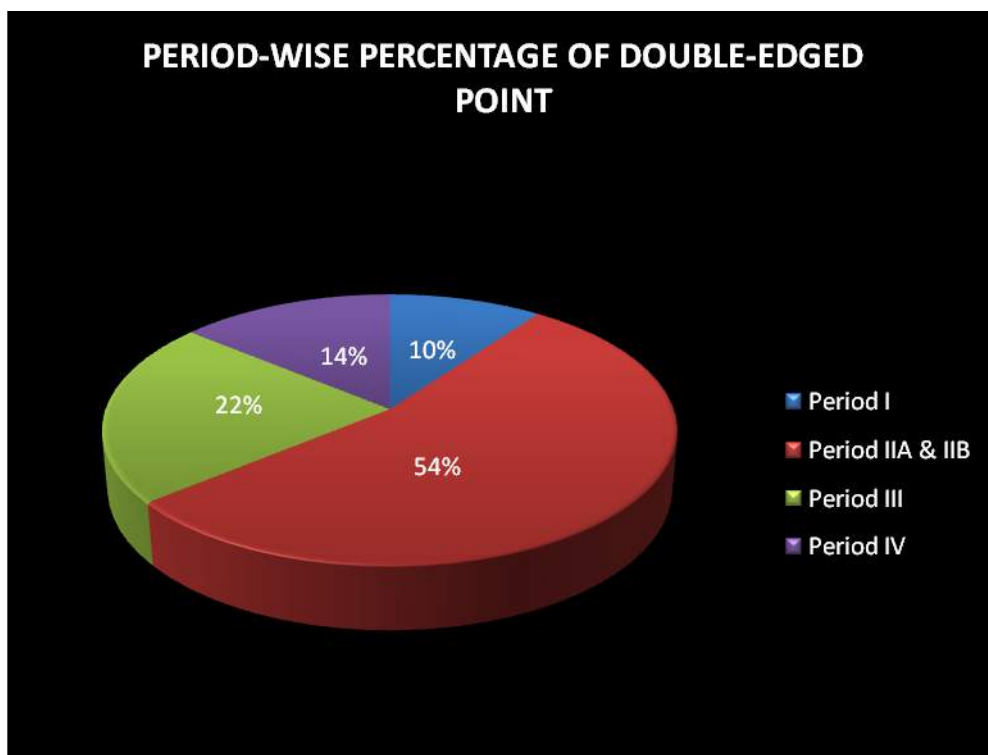
Period IV, and No. 6 is from an Un-stratified level or Surface. Their period-wise distribution is as follows:

Period I: 33, Period IIA & IIB - 185, Period III: 73, Period IV: 49, Un-stratified Levels and Surface - 20.



Excluding specimens from Un-stratified levels and Surface, the period-wise percentage works out as follows:

Period I: 10%, Period IIA & IIB: 54%, Period III: 22%, Period IV: 14%.



The assorted tools in this category are illustrated below:

No 1: Complete. Shaft is nicely dressed, scraped, smoothed and grounded; grinding striation being very prominent. Sides having slight convex contour taper off smoothly to form rather flattish points. There are oblique lateral cuts on both terminal points, which seem to be intentional. The major part of the shaft has been rounded except the central portion. . Its width at mid-point is about 8 mm. Surfaces are highly glossy. Length is 174 mm which make it the longest specimen in this category. Period IIB

No. 1a: Complete, except a minor break at one end. It is a shorter variant of the previous. Shaft dressed, scraped, and smoothed well. Sides having slight convex contour taper off smoothly to form rather flattish points. Section in the middle is irregularly rounded rectangular, and rounded towards both the points, one of which is broken, the intact one is stocky with a minor lateral oblique cut which appears to be intentional. Surfaces are glossy. Length is 129 mm. Anticipated length is 130.5 mm. Period IV

No. 1b: Complete another variant of no 1. Shaft dressed and scraped well, but not smoothed properly. Surfaces are slightly rough except on one face. It appears to have been fabricated from a rib fragment. The section for the main part of the shaft is almost

rectangular except near the upper and lower ends where it is rounded. . There are slight traces of glossiness on one face. Length is 137 mm. Period IIA

No. 2: Complete. Shaft neatly dressed, smoothed and nicely ground. Rounded in section. The edges ,taper off sharply in upper parts and lower parts to form the point.. Surfaces are glossy. Width at mid-point is 7 mm. Length is 77 mm. Period IIB

No. 2a: Complete, thicker and larger variant of no. 2. Shaft properly dressed and smoothed. Section of the shaft in the central 1/3rd is irregularly rounded, and bears some scratches, remaining portion is rounded. Both the points are blunt. Width at mid-point is 10 mm. Length is 107 mm. Period IIB

No. 2b: Complete. Shaft nicely dressed and smoothed. Surfaces are pretty smooth and glossy. Major part of shaft has a rounded section, sides taper off smoothly to form points, one of which is stocky and rounded in outline, the other sharp. Width at mid-point is 7 mm. Length is 88 mm. Period I

No. 3: Complete. Shaft roughly dressed and fabricated from a rib fragment. It has a curved profile. Surfaces are rough and no workmanship is in evidence. Section is irregularly rounded to rounded rectangular, The edges taper sharply in the upper part to form a flattish point with an oblique cut at one end, the other end is stocky with irregular lateral whittling. Surfaces are non-glossy. Width at mid-point is about 11 mm. Length is 136 mm. Period IIA

No. 3a: Complete, roughly dressed. No smoothing is in evidence. The shaft has a markedly curved profile. Section is mainly irregular flattened oval, except towards one end where it is irregular round. One of the tips is flat, the other stocky with rough lateral cuts. Surfaces are rough and non-glossy. Width at mid-point is 12 mm. Length is 162 mm. Period III

No. 3b: Complete. Shaft, roughly dressed and partially smoothed, has a curved profile. Major part of shaft is flattened oval in section, and rounded at points. Sides taper off smoothly towards both the ends to form points with minor lateral cuts. Surfaces are partially glossy. Width at mid-point is 8 mm. Length is 128 mm. Period III

No. 4: Complete. Dressed and partially smoothed. The central part is comparatively wider than the upper parts. In shape, it is roller like with sidegrips. Sides taper off sharply to form a flattish tip at one end and a stocky one at the other. Surfaces are non-glossy. Width at mid-point is 9 mm. Length is 89 mm. Period IIA

No. 4a: Complete. Shaft relatively well dressed and smoothed. Surfaces are slightly rough in the middle. The shaft has been rounded in the upper and lower parts. The edges taper off sharply to form points, one of which is blunt, the other sturdy. Width at mid-point is 7 mm. Length is 94 mm. Period IIA

No. 4b: Complete except for one damaged tip. Shaft neatly dressed and smoothed. Surfaces are highly glossy. Sides taper off sharply to form a slender point at one end, and smoothly at the other terminating in a flat thick point. In section, shaft is irregularly round towards one end, remaining portion being round. Width at mid-point is 7.5 mm. Length is about 93 mm. Anticipated length is 97 mm. Period I

No. 4c: Both tips broken. Shaft dressed and smoothed Surfaces are smooth and non-glossy. Shaft is oval in section at the center and rounded towards points. Sides taper off sharply to form points. Width at mid-point is 7 mm. Length is 89 mm. Anticipated length is 93 mm. Period III

No. 5: Complete. Surfaces dressed and smoothed properly. Shaft has a curved profile is rectangular in section, except at one end where it is rounded. Sides taper off smoothly to form points, one of which is flat; the other is blunt with an oblique cut. Traces of glossiness near points are clear. Width at mid-point is 6 mm. Length is 148 mm. Period IIA

No. 5a: Complete. It is a thinner variant of preceding one. Roughly dressed and smoothed, surfaces are crude and non-glossy. The upper 1/5th end of the tool has been rounded, rest of the shaft is partly rectangular or rounded rectangular in section. Both points are stocky, one of which has a minor oblique cut. Width at mid-point is about 6 mm. Length is 154 mm. Period III

No. 6: Complete, except for a minor lateral break at one end. Dressed properly but smoothing not up to mark,. There are few rough cuts on drawn face, whether accidental or intentional, difficult to determine. Rounded in section, almost straight sided except at either ends, where sides taper off to form points, which are sturdy and stocky. Minor traces of glossiness are noticeable. Width at mid-point is 10 mm. Length is 120 mm. Unstratified

No. 7: Complete, neatly dressed. Surfaces are smoothed and highly glossy; attempt has been made to remove cancellous tissues, bits of which still survive in one portion. The lower part of the tool has been rounded and the rest of the shaft is an irregular oval. The tool is nearly straight sided, except at either end. One point is blunt with an oblique cut,

the other secured by lateral bevelling, is flattish. Width at mid point is 8 mm. Length is 119 mm. Period IIA

No. 7a: Complete. Roughly dressed and whittled, partial smoothing in evidence. The upper part of the tool is rounded in section and remaining portion irregular. Surfaces are glossy except for roughly whittled portions. One point is stocky and the other secured by irregular lateral bevelling. Width at mid-point is 7 mm. Length is 121 mm. Period IIB

No. 8: Incomplete, one end broken, the other tip is knife shaped. Shaft roughly dressed and whittled. Surfaces are glossy, with minor concavity. Width at mid-point is about 8 mm. Length is 123 mm. Anticipated length is 124 mm. Period IIB

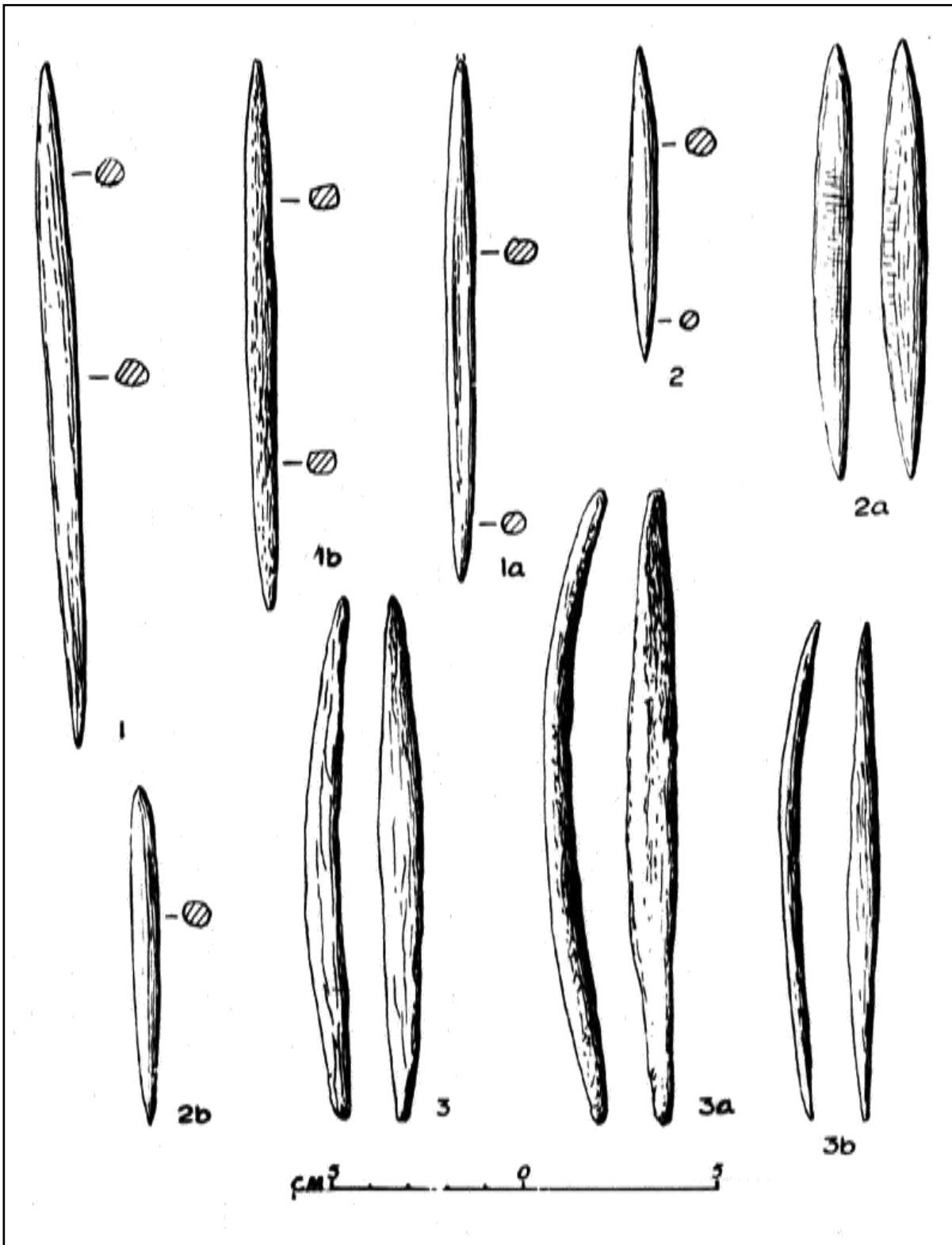


Fig.4.3.14 Double-tipped points (knitters)

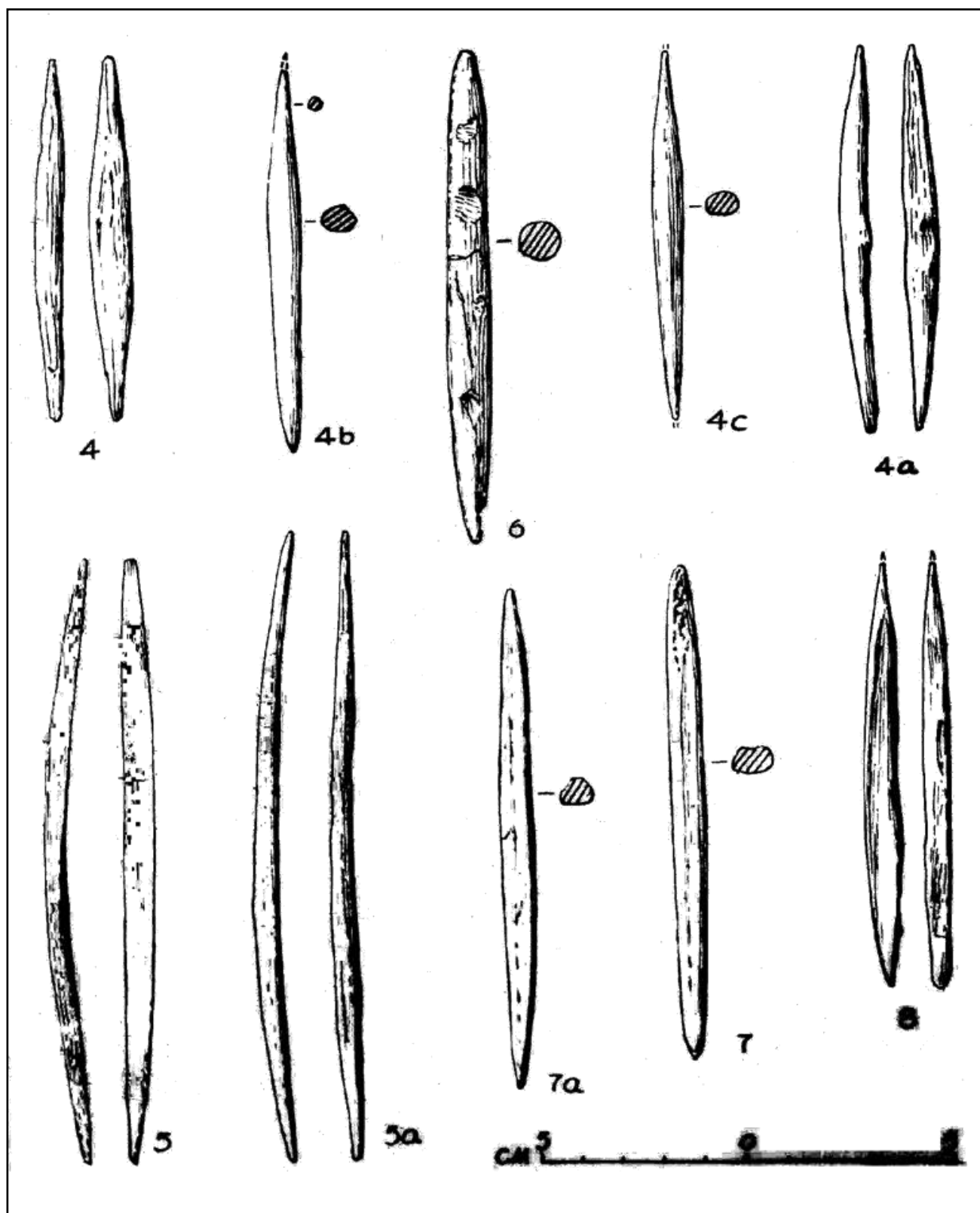


Fig.4.3.15 Double-tipped points (knitters)

DOUBLE-TIPPED POINTS PIN TYPE

The total number of double-tipped points or pins in bone from Burzahom is 75. They have their counterparts in stone also. Eight types with a few variants determined by variation in the shaft, fabrication of points and size have been illustrated (Fig. 4.3.16). Tools of illustrated specimen no. 8 and its sub-type are distinctive because of extra efforts at fabrication of the shaft, good workmanship, slightly thicker central part, and highly glossy surfaces. Generally the shafts have been neatly dressed, smoothed and ground. In most cases in section these are evenly or unevenly rounded, oval or flattened oval in parts, however, triangular in specimen no. 7, and squarish in the central portion in nos. 8a and 8b. Surfaces are highly glossy in no. 8 and its variants. Other types are partially glossy. The points at either end are generally sharp, even incisive, however, few blunted as well. It has also been observed that point at one end may be sharp, and blunt on the other. In the illustrated types maximum length is 112 mm and the minimum length is 38 mm. Other types range in between. The maximum width or diameter at the mid-point is 6 mm and the minimum is 3 mm.

From technological point of view, some of the best worked specimens (nos. 5 and 8) are recovered from Period I, no. 8a, which displays workmanship of a high order, is from the earliest level of Period IIA, other specimens showing good workmanship from the same Period are nos. 1, 1a, 2, 2b, 2e, 2f, 3, 6, 7, 8b and 8c; and Nos. 2a, 2c, 2d, and 4 are from Period IIB. It is quite likely that these double tipped points were used as hair pins. This is also suggested by form and fabrication and no other functional utility is otherwise clearly indicated. The thinning of the points towards either end must have involved a great deal of cutting, scrapping and smoothing.

The selected pin type points are described below:

No. 1: Complete. Neatly dressed, smoothed and ground. Shaft is almost uniformly thick and has a rounded section. The points at either ends are rather blunt. Surfaces are glossy. Grinding striae are markedly apparent. Diameter at mid-point is 3 mm. Length is about 82 mm. Period IIA

No. 1a: Complete and a thicker and larger variant of the preceding one, but having a slightly curved profile. Shaft tempered by charring. Surfaces are glossy, points at either end are stocky and blunt. The main part of the shaft has been rounded but it is not uniformly thick. Diameter at mid-point is 4.5 mm. Length is 104 mm. Period IIA

No. 2: Complete. Neatly dressed and smoothed. Shaft uniformly rounded in section, sides taper off smoothly towards both ends, terminating in slender but rather blunt points. Surfaces are glossy. Length about 53 mm. Diameter at mid-point is 3 mm. Period IIA

No. 2a: Complete. It is a smaller variant of the preceding one. Shaft unevenly rounded. Points at either end are blunt. Surfaces are partially glossy. Width at mid-point is about 3 mm. Length is 38 mm. Period IIB

No. 2b: Complete. Shaft rather unevenly dressed and smoothed. Surfaces are partially glossy. Major portion of shaft flattened oval in section, both points are blunt. Width at mid-point is 3 mm. Length is 45 mm. Period IIA

No. 2c: Complete except for broken tip at one end, extant point are blunt. Shaft unevenly dressed, rounded in section. It is a thicker variant of no. 2. Surfaces are glossy. Width at mid-point is 5 mm. Length is 55 mm. Anticipated length is 57 mm. Period IIB

No. 2d: Complete, thicker and slightly shorter variant of no. 2. Neatly dressed, smoothed and rounded shaft, terminating in sharp points. Surfaces are glossy. Diameter at mid-point is 5 mm. Length is 52 mm. Period IIB

No. 2e: Complete, slightly thicker variant of no. 2. Shaft neatly dressed and smoothed, but with slightly unevenly rounded central section, both ends terminate in rather blunt points. Surfaces are partially glossy. Length is 53 mm. Width at mid-point is 4 mm. Period IIA

No. 2f: Complete. Neatly dressed and smoothed. In section shaft is slightly square in central part, rounded towards one end which has a sharp point and flattened oval in the other. Surfaces are glossy. Width at mid-point is 5 mm. Length is 80 mm. Period IIA

No. 3: Complete. Properly dressed, most part smoothed. With a fracture in the centre, shaft is flattened oval in section having thin rounded ends terminating in blunt points. Surfaces are glossy. Width at mid-point is about 3.5 mm. Length is 112 mm. Period IIA

No. 4: Complete. Round in section, central 1/3rd of shaft is roughly dressed, remaining portion towards gradually thinned down ends is neatly smoothed, both points being blunt.. Surfaces are glossy. Width at mid-point is about 5 mm. Length is 91 mm. Period IIB

No. 5: Complete. Neatly dressed and smoothed. Section is flattened oval all through; sides taper off smoothly towards both ends, and terminate in blunt points. Surfaces are glossy. Width at mid-point is 4.5 mm. Length is 85 mm. Period I

No. 6: Complete. Shaft irregularly dressed and partially smoothed. The Section for the upper 2/3rd part of shaft towards one end is roughly rectangular, remaining is flattened oval. Both tips are sharp, however, one of which sharper. Surfaces are partially glossy, and one face is slightly dark. Width at mid-point is 6 mm. Length is 73 mm. Period IIA

No. 7: Complete. Shaft, roughly dressed and smoothed, has a triangular section. Surfaces are glossy. Width at mid-point is 3 mm. Length is 76 mm. Period IIA

No. 8: Complete, neatly finished. Shaft has three distinct parts, the central one of which is thicker and rough, and its equally proportioned longitudinal flanks are relatively thin. Effectively dressed and ground. In section central part is flattened oval due to irregular whittling and highly glossy. Sides at both ends taper off to form sharp points. Total length 53 mm, in which central part covers 16 mm. Width at mid-point is 3.5 mm. Period I

No. 8a: Complete, slightly thicker and larger variant of the preceding one. In section, central portion is almost square the other one oval to round. Surfaces are highly glossy. One of the tips is sharp the other rather blunt. Total length 62 mm, central portion with squarish section 17 mm. Width at mid-point is 4 mm. Period IIA

No. 8b: Complete, slightly shorter and thicker variant of No. 8., central portion is squarish with rounded sides in section. . Surfaces are highly glossy. Sides at both ends taper off to form blunt points. Total length about 44 mm, central portion 15 mm and width at mid-point is 4 mm. Period IIA

No. 8c: Complete, longer variant of no. 8, but with a slightly curved profile. Shaft nicely smoothed. Surfaces are partially glossy. Central portion, slightly thicker than the longitudinal flanks, is poorly worked. Major part of shaft approaches oval in section. Width at mid-point is 4 mm. Length is 68 mm. Period IIA

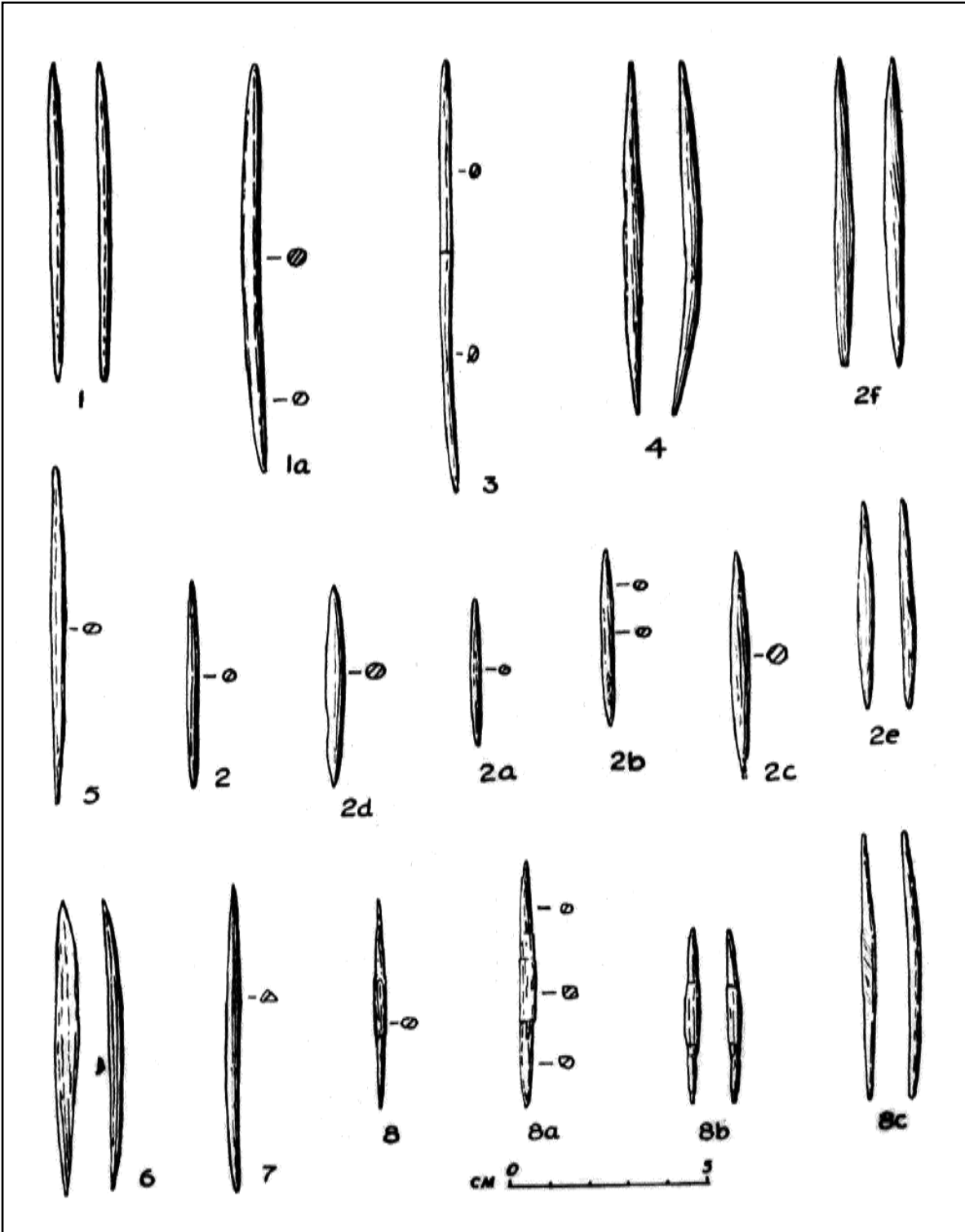


Fig.4.3.16 Double-tipped points (pin type)

NEEDLES

SINGLE EDGED POINTS (NEEDLES WITH EYES)

Burzahom is fairly rich in needles, showing numerous typologies categories. There are great variations in sizes and forms. Needles seem to have been in frequent use in everyday life from the very earliest stages, for example, plain needles in stitching the skins, and the stocky and curved needles in knitting and weaving, especially the nets, since fishing and fowling were important occupations and means of subsistence. Twenty nine (29) forms of needles along with few variants have been identified and illustrated (Fig. 4.3.17 nos. 1 to 7, Fig. 4.3.18 nos. 8 to 15, Fig. 4.3.19 nos. 16 to 23 and Fig. 4.3.20 nos. 24 to 29), though the excavation yielded one hundred and seven (107) examples of different varieties sizes, the typology is mainly based on their form and size, transverse and longitudinal sections, formation of the eye, butt and point, and the needle point.

Long and medium sized needles have been illustrated under specimen nos. 1 to 15. In these types, the head-end is flattened, rectangular or rounded in outline. In certain cases, the head-end is flattened oval. The shaft below the eye, smoothed and ground effectively, is rectangular, rounded rectangular, or flattened oval to mostly rounded in the lower part and the needle point being slender and sharp or slightly blunt. Specimen nos. 8 to 15 is in the same category but with few different features, notably, the head-end is flattened or irregular in outline or elongated and terminating in a blunt point. In some examples the shafts are thick and sturdy, and in most cases rounded from the mid-point towards needle point.

The surfaces are highly glossy, glossy or partially glossy. It is presumed that nos. 8, 11 and 12 might have been used for stitching and weaving as well. Similar is the case with nos. 16 to 23, which are curved needles and may have proved more useful as knitters, nos. 21 and 23 are very interesting in this category.

In case of no. 21, the eye has been secured first by gouging on either face roughly at the centre of the shaft and then cutting a 14 mm long and 2 mm wide narrow eye nearly at the centre of the gouges. In case of no. 23 the gouging has been done in a similar fashion, but finally the eye has been made by boring on either face, which explains why the eye is a regular one in this case, while it is of the slit pattern in the case of no. 21. Specimen no. 10 is also provided with an eye in similar fashion, but it is not in the centre of the shaft. The following points deserve special mention in the case of Nos. 10, 21, and 23.

- a. The eye has been secured by gouging on either face.
- b. All the three types are double-pointed.
- c. In point of time, these are late.

Nos. 21 and 23 are from Period IIB, while No. 10 is from Period III which is Post Neolithic. In all other cases, the eye is bored from both the sides, hence an hour-glass like formation. While there are variations, the diameter generally is in the range of 3 mm on the inner side and 5 mm on the outside. Its proportion is not determined by the size and thickness of the needle. The largest needle is 221 mm long. Perhaps long and curved needles were used in working thick and folded hides; otherwise it is hard to explain the abnormal length, and curved profile. It is also likely that some of the curved types may have been used as knitters.

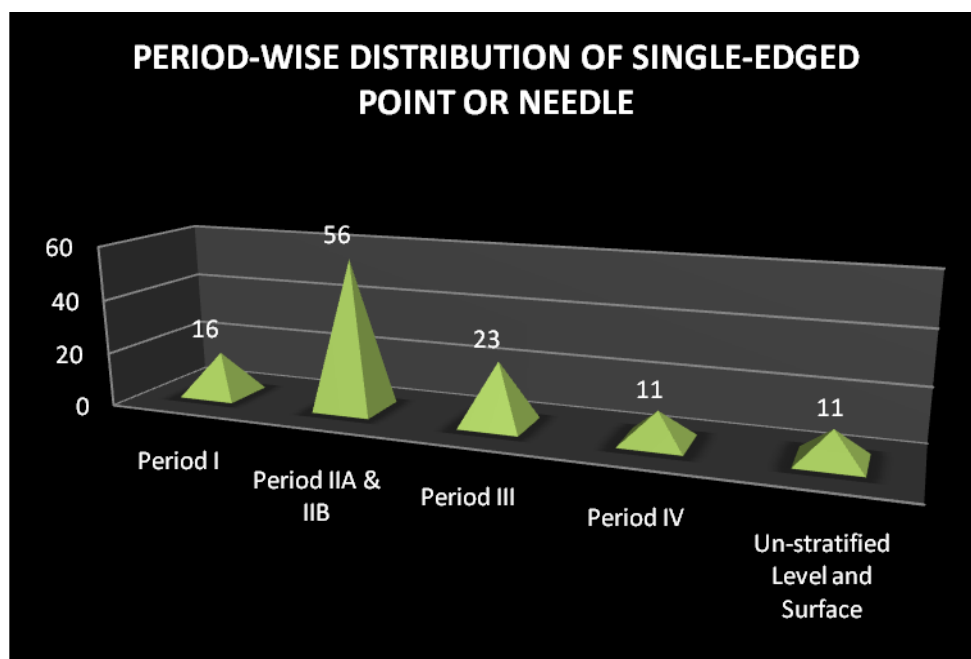
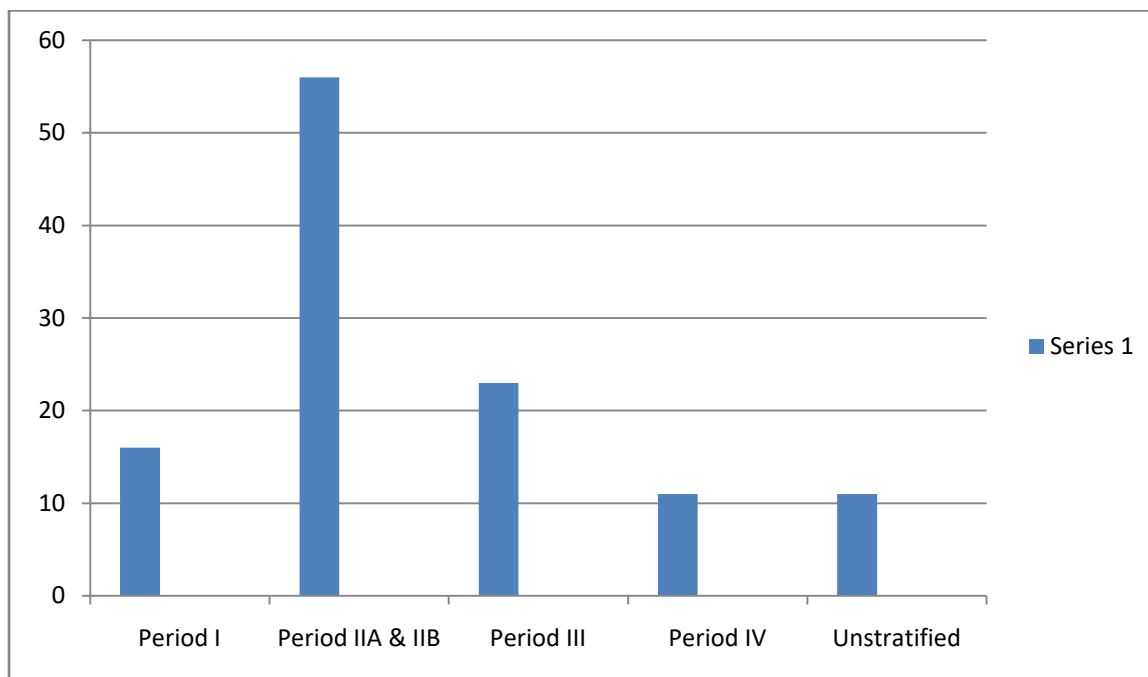
The smaller needles have been classified as different types, even though generally their features agree with the larger types. Their sizes range from 29 mm to 60 mm. These needles may have been functionally useful in working thinner hides and similar other miscellaneous purposes.

It is clear that right from the earliest stage sophisticated types of needles were manufactured and used. Needles have been fabricated mostly from fragments of long bones, but few examples made from ribs have also been found. Scraping and whittling for the shafts, boring the eyes, formation of proper head-ends as well as the incisively sharp needle points must have involved a good deal of skill and labour in cutting, scraping, smoothing, and boring.

From the stratigraphical point of view illustrated specimen nos. 6, 11, 13, 14, 16a, 17, 27a and 28 are from Period I, nos. 1, 1a, 3, 4, 5, 8, 12, 16, 22, 26a and 27 are from Period II A, nos. 5a, 15, 19, 21, 23, 24, 28a and 29 are from period IIB, nos. 2, 9, 10, and 25 are from Period III, nos. 7 and 18 are from Period IV, and nos. 20 and 26 are from Unstratified Level or Surface.

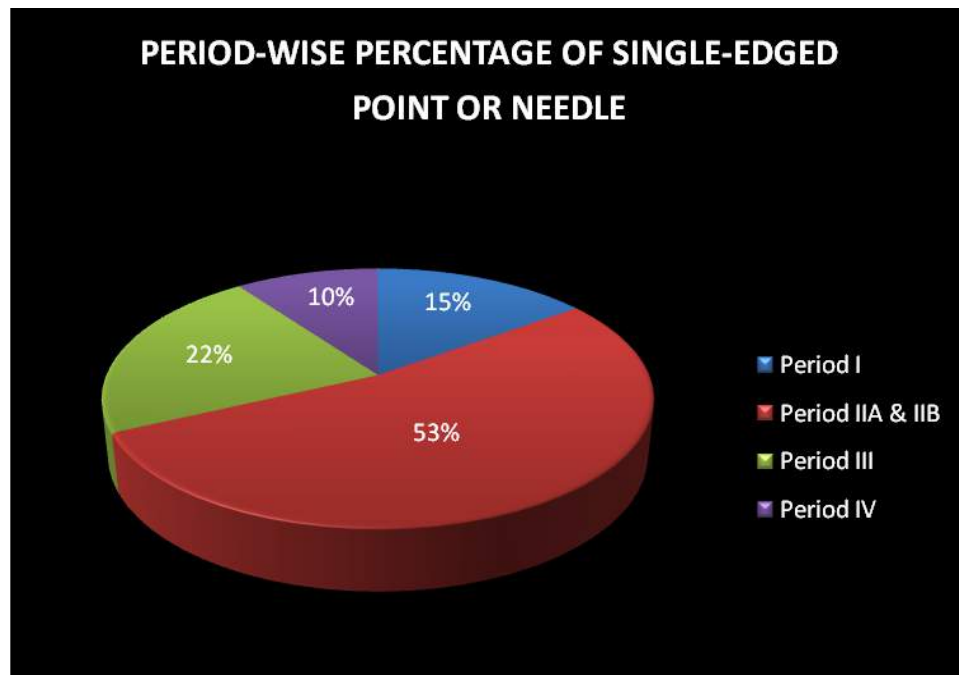
All told 117 needles have been recovered from the excavations at Burzahom inclusive of the broken specimens. The period-wise break-up of their distribution is as follows:

Period I: 16, Period IIA & IIB: 56, Period III: 23, Period IV: 11, Un-stratified Levels and Surface: 11.



Exclusive of the needles from Un-stratified Levels, the period-wise percentage break-up is as follows:

Period I – 15%, Period IIA & IIB – 53%, Period III – 22%, Period IV – 10%.



No. 1: Complete. Long shaft damaged in the center, light brown in colour, evenly smoothed, ground and glossy due to use, tapers off smoothly to terminate in a slender sharp point. Eye bored close to flattened head-end, which is rectangular in section and outline, its inner dia is 3 mm and outer one 5 mm. Shaft below the eye has been rounded, diameter at the centre being 5 mm. Surfaces are highly glossy. Length is 200 mm. Period IIA

No. 1a: Complete. It is a smaller variant of the above. Flattened head-end, eye bored from both sides, inner dia being slightly less than 3 mm. Shaft is well grounded and surfaces are highly glossy. 1/3rd of the tool below the eye is oval, the rest evenly rounded, diameter in the centre being 5 mm. Sides taper off smoothly to form a sharp operative point, which bears a minor lateral break near the tip. Length is 96 mm. Period IIA

No. 2: Complete with slightly irregular scratches. Roughly flattened head-end, eye bored from both sides, hence inner dia 2 mm outer one 4 mm. Shaft with irregular scratches on both the faces. It has been shaped, smoothed and ground well, but uneven in section, as it is flattened oval below the eye and unevenly rounded towards blunt tip. Surfaces are glossy. Length is 118 mm. Period III

No. 3: Incomplete. Eye, bored from both sides, is partly broken. Shaft has been smoothed. It is flattened oval below the eye, and nearly rounded up towards operative tip, which is broken. Only lower part of the tool bears traces of glossiness due to use. Length is 167 mm. Anticipated length is 175 mm. Period IIA

No. 4: Complete. It is the largest needle from Burzahom. Its head-end is rounded in outline, and the eye bored from sides, hence inner dia 4 mm, and outer one 5 mm. Shaft, slightly curved near the centre, is carefully worked. Its section is flattened oval, but the lowest part is rounded. Width near the centre is about 8 mm. Its sides taper off smoothly and terminate in a blunt point. Surfaces, though smooth, are not glossy. Length is 221 mm. Period IIA

No. 5: Complete, flattened oval head-end tapering upwards to form a stocky flattish point with double bored eye. Surfaces have been smoothed, ground and are highly glossy. Shaft just below the eye is flattened oval, and rounded in the lower 2/3rd part of the tool. Sides taper off smoothly up to mid-point, and sharply in the lower part to form the sharp point. Though small, it is a sturdy effective needle. Width at mid-point is 6 mm. Length is 75 mm. Period IIA

No. 5a: Complete. Flattened head-end, eye bored from both sides. Double bored hole inner dia is 3 mm, and outer one 5 mm on one face and 4 mm on the other face. Surfaces are highly glossy. Sides taper off smoothly to form point, which is slightly damaged in one end. The lower 2/3rd part of the tool towards point is evenly rounded. Width at mid-point is 5 mm. Length is 76 mm. Period IIB

No. 6: Complete. Flattened head-end, rectangular in section and outline, eye bored from both sides, hence inner dia 2.5 mm and outer one 3.5 mm. Shaft has been smoothed and ground well. Minor traces of glossiness due to use. Major part of shaft has been evenly rounded, terminating in a slender sharp point. Length is 70 mm. Period I

No. 7: Complete. It has flattened head-end, rectangular in outline, eye bored from both sides, hence inner dia 2.5 mm and outer one 4 mm. Shaft has been smoothed and groundwell. In section, it is flattened oval below eye and rounded from mid-point towards point. Sides taper off smoothly to form a sharp needle point. Surfaces are highly glossy. Length is 92 mm. Period IV

No. 8: Complete, except for the head-end with partially broken eye which is bored from both sides, hence inner dia 3 mm and outer one 4 mm. Shaft is thick and roughly semi-circular in section towards eye end and below that evenly rounded with sides tapering

off smoothly to form a blunt point. It is smoothed and ground effectively;. Slightly curved and rounded profile towards point. Length is 145 mm. Period IIA

No. 9: Complete. Short head-end, flattened oval in section and rectangular in outline, eye bored from both sides, hence inner dia 2.5 mm and outer one 4 mm. Shaft, smoothed and ground, is flattened oval in section up to mid-point, and evenly rounded below it and slightly curved in profile towards eye end. Width at mid-point is about 5.5 mm, slightly curved in profile towards eye end. Surfaces are highly glossy. Length is 122 mm. Period III

No. 10: Complete. Double-tipped long needle tapering towards the head-end and terminating in a rather blunt point. The eye has been secured first by 32 mm elongated gouging on one face, and 25 mm on the other one and then cutting a 5 mm long and 3 mm wide eye almost in the centre of the gouges. The section above the eye is rounded rectangular except for the gouged portion but it is rounded towards the tip of the shorter shaft; while the larger shaft has been effectively smoothed and ground, has rounded rectangular section up to mid-point and evenly rounded below it. The shaft is damaged in the center. Sides taper off smoothly from the eye towards both points. Surfaces are highly glossy. Length is 178 mm. Period III

No. 11: Complete. Rounded head-end with bits of cancellous tissues on one face, eye bored from both sides, hence inner dia about 4 mm, and outer one 6 mm. It has a curved profile from slightly below the eye towards head-end. Shaft has been dressed well and surfaces are highly glossy. Major portion of its section approaches concavo-convex and rounded near the operative point. Sides taper off smoothly to form point, which is blunt and has a minor lateral break on the upper part. Width at mid-point is 7.5 mm. Length remains 146 mm. Period I

No. 12: Complete, except the broken tip. Short flattened head-end, almost rectangular in outline, thinner towards the top. Eye bored from sides, therefore inner dia 6 mm and outer one is about 8 mm. This medium sized tool is the widest type in the Burzahom collection, its shaft measures 13 mm wide just below the eye, 11 mm at mid-point, and 9 mm above the operative point. The shaft has been smoothed, flattened and ground well and damaged in the center. It appears that the damage is intentional. It is rounded rectangular in section below the eye, and further below oval. Sides taper off smoothly towards point. Its shape suggests that it might have been used in knitting and weaving. Length is 104 mm. Period IIA

No. 13: Incomplete. Tip is broken and head-end worn out from the eye. Shaft has been nicely dressed, smoothed and ground, surfaces highly glossy. Shaft is rounded

rectangular up to 15 mm below the eye and evenly rounded below that. Edges taper off sharply in the lower part to form a slender point. Shaft is uniformly thick and thinner towards either end, width at the centre being about 8 mm. It is a pretty sturdy needle. Length is 116 mm. Anticipated length is 123 mm. Period I

No. 14: Complete, except for the broken tip. Flattened head-end, rectangular in section, eye bored from sides therefore, inner dia 2 mm and outer one is 3.5 mm. Shaft with dressed sides, has minor concavity on one face, and the other one is flattened. Width at mid-point is 6 mm. Length is 76 mm. Period I

No. 15: Complete. Roughly flattened and broad head-end, irregular in outline, with bits of cancellous tissues on one face, having double bored eye the inner diameter of which is 3.5 mm and outer one being 5.5 mm. Surfaces dressed well but not fully smoothed, grinding striae are in evidence. The shaft is Plano-convex with straight sides below the eye? up to mid-point, and approaching rectangular in section below it and further below is rounded. Sides taper off sharply to form a slender sharp point. Minor traces of glossiness are visible due to use. Width at mid-point is 5 mm. Length 116 mm. Period IIB

No. 16: Complete except for broken tip. It has double bored eye thus, inner dia 3 mm, and outer one 5 mm. There is a round depression on one side below the eye. Though the surfaces have been dressed well, section varies. and evenly rounded in the operative part. Shaft is slightly curved in profile. Width at mid-point is about 8 mm. Length is 96 mm. Period IIA

No. 16a: Complete, short head-end, rectangular in section, eye bored from both sides, hence inner dia 3 mm, and outer one 5 mm. It appears that at first boring was attempted at a higher level which broke either during fabrication or else after use and the surface was again smoothed to work the eye. Shaft has a curved profile and has been properly dressed, smoothed and ground. It is rectangular in section just below the eye, flattened oval up to mid-point, and evenly rounded further below to form a stocky blunt operative point. Surfaces are glossy. Width at mid-point is 6 mm. Length is 134 mm. Period I

No. 17: Incomplete. The lower part is utterly broken and a lateral break in extant lower part of shaft. It has broad and flattened head-end approximately rectangular in outline and section. Eye bored from sides, hence inner diameter 3 mm and outer one 5 mm. Dressing and smoothing are poor and surfaces are not glossy. The cross section below the eye is roughly rectangular with rounded sides. Shaft has a curved profile. Width at mid-point is 8.5 mm. Length is 78 mm. Period I

No. 18: Complete except for a lateral break in the tip. Flattened oval head-end, double bored eye, hence inner diameter 2 mm and outer one 3 mm. Shaft having curved profile is properly dressed, shaped, smoothed and ground. Surfaces are highly glossy. It is uniformly flattened oval in section. Smooth taper towards operative point. Width at mid-point is 5 mm. Length 72 mm. Period IV

No. 19: Complete except for broken tip. Flattened oval head-end, eye bored from both sides and so inner diameter 2.5 mm and outer one 3.5 mm. Shaft has been dressed and smoothed. Its major part is flattened oval in section. Surfaces are glossy. Length is 124 mm. Anticipated length is 138 mm. Period IIB

No. 20: Incomplete, broken head-end including eye. Shaft has a curved profile. Surfaces are smoothed, ground well and glossy. Section below eye is irregular concavo-convex up to 20 mm, below that evenly rounded with sides tapering off to form a slender sharp point. There are a few irregular scratches on one face. Width at mid-point is 4.5 mm. Length 60 mm. Unstratified

No. 21: Complete. Distinctive type, crescent shaped, with eye provided in the centre. The eye has been secured first by gouging 60 mm on one face and 45 mm on the other face at the centre of the shaft, and then cutting a 14 mm long and 2 mm wide narrow eye nearly at the centre of the gouges. Shaft is wider in the centre and tapers off smoothly towards either end of the double-pointed needle. Shaft has been dressed well and ground properly. Section of its one part is flattened oval and the other one is unevenly rounded. Surfaces are glossy except for the spongy portions. Width at the centre is about 9 mm. Length is 114 mm. Period IIB

No. 22: Incomplete crescent shaped. The head-end, part of eye and tip are broken. Surfaces nicely dressed and ground, are highly glossy. Shaft is tempered by charring. It is flattened oval below the broken eye up to mid-point and evenly rounded below it. The edges taper smoothly towards a slender point which is broken. Width at mid-point is 4 mm. Length 52 mm. Period IIA

No. 23: Complete, distinctive type, double-tipped needle tapering off smoothly towards both points from the eye. The eye has been secured first by elongated gouging on both the faces and then bored from both the faces. Shaft has been dressed well and smoothed. Surfaces are glossy except for spongy portions. The longer side of the shaft is roughly rectangular below the eye with minor concavities because of gouging and rounded further below towards the point. Its shape suggests that it may have been used in knitting and other delicate works. Length is 132 mm. Width at mid-point is 5 mm. Period IIB

SMALL NEEDLES (with Eyes)

No. 24: Complete. Flattened head-end, notched at the top, and rounded rectangular in section. It is likely that originally the eye was worked on the notched portion which was broken either during fabrication or later during use. Eye bored from both sides having inner dia 3 mm and outer one 4 mm. Shaft smoothed and ground. It is flattened oval in section just below eye and evenly rounded from mid-point downwards. Width at mid-point is about 3.5 mm. Surfaces are glossy. Sides taper off sharply just below the eye and terminate in a slender incisive point. Length is about 57 mm. Period IIB

No. 25: Complete. Flattened head-end, traces of notching at the top, rounded rectangular in section. It appears that originally the eye was bored at the top where its traces are still visible in the extant semi-circle profile, however, either it was broken during fabrication or else later during use, hence another eye was worked below it. Double bored hole WITH inner dia 3 mm, and outer one 4 mm. Shaft smoothed and surfaces are glossy. Section below eye is rounded rectangular up to mid-point, elliptical below that, sides taper off to form a blunt point. Surfaces below mid-point show rough cut-marks. Width at mid-point is about 5 mm. Length 60 mm. Period III

No. 26: Complete. It is flattened and broad at head-end. Surfaces are smoothed, ground well and glossy. Upper part of the tool has a curved profile. Eye bored from both sides hence inner dia 2 mm and outer one is 4 mm. Major portion of the shaft below eye approaches concavo-convex in section and rounded near operative part. Sides taper off sharply to form a slender and sharp point. Width at mid-point is 6 mm. Length is 55 mm. Unstratified

No. 26a: Complete, short head-end, irregular in outline. Double bored eye hence inner diameter 2 mm and outer one is about 5 mm. Surfaces poorly smoothed. Section below eye is irregular concavo-convex, rounded further below up to operative part. Sides taper off sharply and terminate in a sharp point. Width at mid-point is 6 mm. Length 40 mm. Period IIA

No. 27: Incomplete, head-end broken from eye. Slender like modern needle, its shaft has been smoothed and ground effectively, surfaces are glossy. Section is oval below eye up to mid-point and evenly rounded further below, terminating in a sharp incisive point. Width at mid-point is about 2 mm. Length 51 mm. Period IIA

No. 27 a: Incomplete. It has broken operative point and head-end from eye. Shaft is smoothed and ground well with glossy surfaces. Section below eye is approximately

rectangular with rounded sides. . Sides taper off to form a point. Width at mid-point is 2 mm. Length 28 mm. Anticipated length is 31 mm. Period I

No. 28: Complete, flattened head-end, rectangular in section. Eye bored from sides, hence inner dia 3 mm and outer one 4 mm. Shaft is properly smoothed, ground and highly glossy. Section below eye up to mid-point is rounded rectangular and nearly rounded further. Sides taper off sharply to form an incisive point. Width at mid-point is 4 mm. Length 53 mm. Period I

No. 28a: Complete and a shorter variant of the above with flattened head-end which is rectangular in section. Double bored eye hence inner diameter 2 mm and outer one is 3 mm. Shaft dressed and smoothed properly, surfaces are glossy. Section below eye is rounded rectangular but oval at lower part. Needle point is rather blunt. Width at mid-point is 3.5 mm. Length is 30 mm. Period IIB

No. 29: Complete, roughly trimmed head-end with a minor concavity on one face. Eye bored from both the faces having 2 mm inner diameter. Shaft roughly dressed and smoothed with partially glossy surface. Section below the mid-point approaches rectangular. Sides taper off sharply to terminate in a sharp point. Width at mid-point is 4 mm. Period IIB

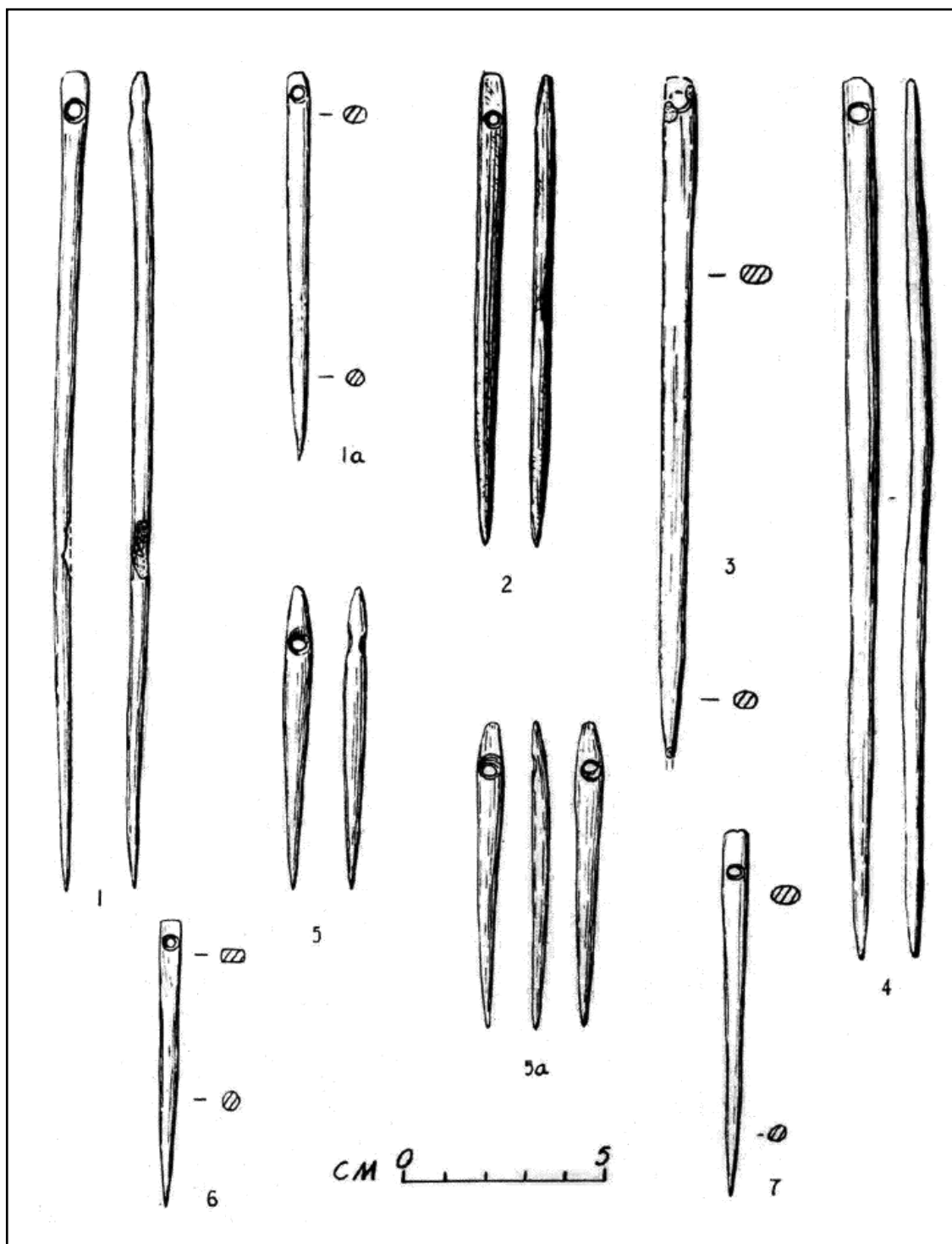


Fig.4.3.17 Single edged points (Needles with eye)

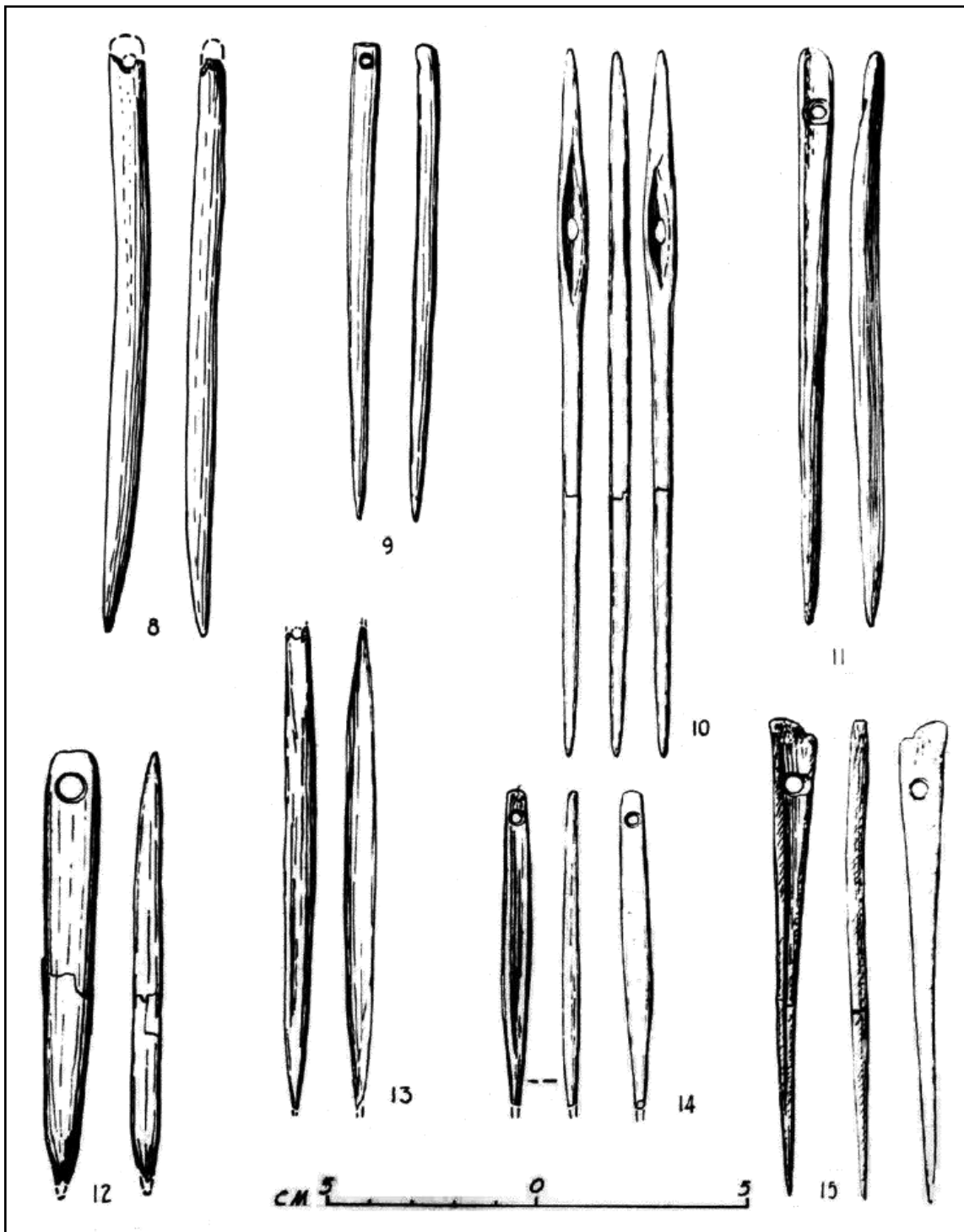


Fig.4.3.18 Single edged points (Needles with eye)

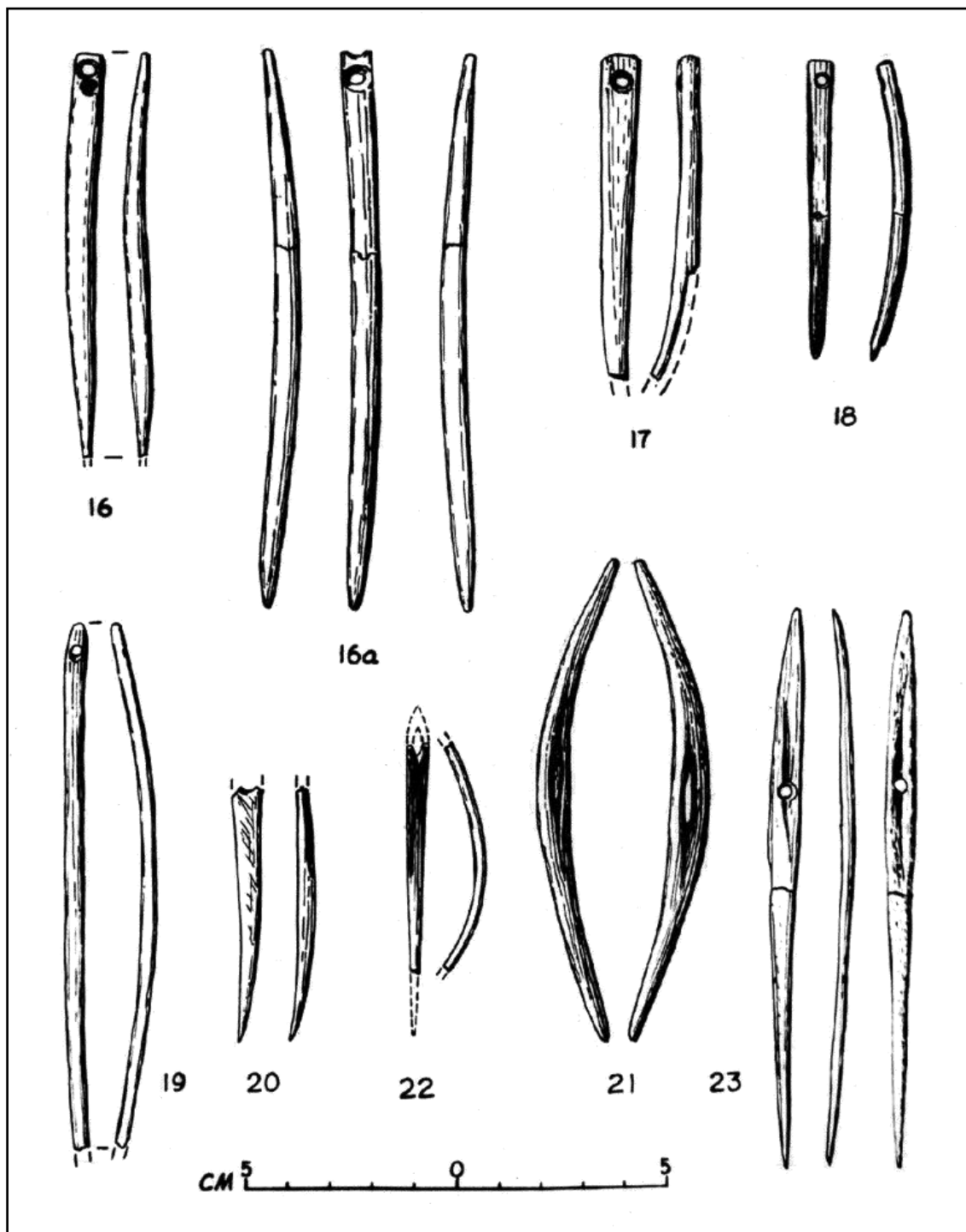


Fig.4.3.19 Single edged points (Needles with eye)

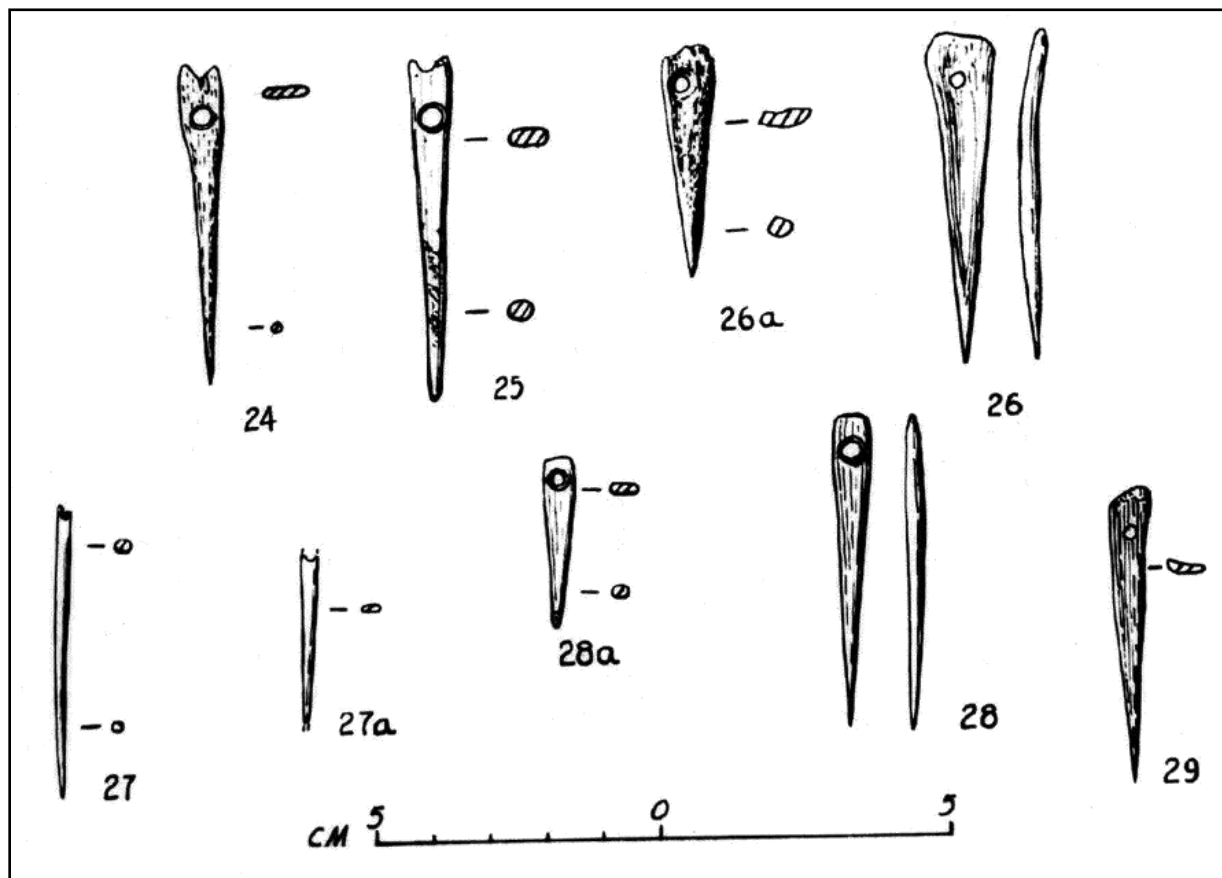


Fig.4.3.20 Single edged points (Needles with eye)

ARROW-HEADS

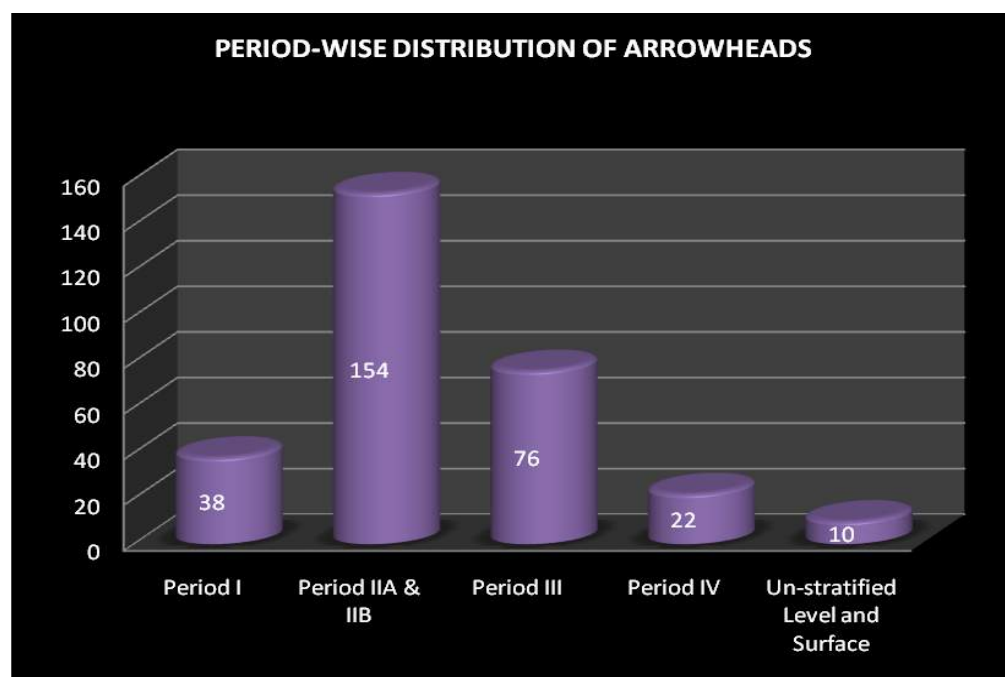
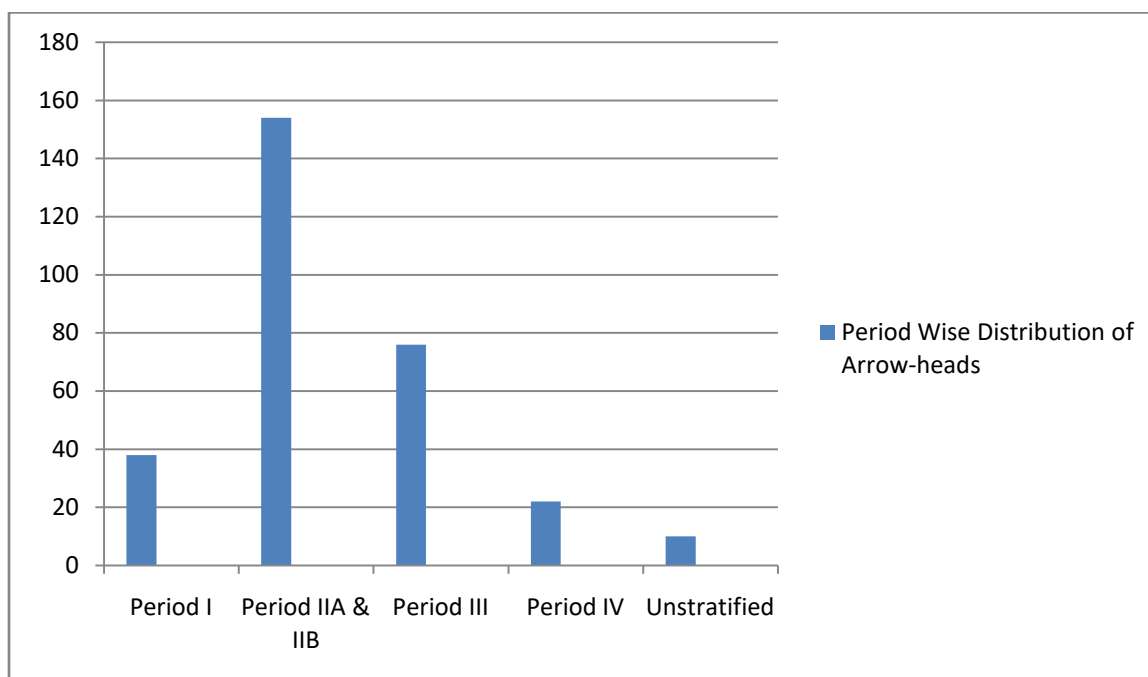
SINGLE EDGED POINT

Of all the weapons invented by mankind in antiquity bow-and-arrow is the most effective one tool surviving and the Neolithic folks of Burzahom have used it extensively as evidenced in a rich collection of their bone arrowheads. The size and manner of fabrication of arrowheads indicate their multipurpose use. Although they were most effective in hunting light game and bird, these were equally and highly useful in wounding big game from a long distance without risking its user's life. This is clear from a hunting scene depicting two hunters chasing a big game with spearhead and bow-and-arrow, engraved on a stone slab found in Period IIA. It shows a hunter in the process of shooting an arrow while another arrow has already met its target as its operative point penetrates the body of the animal. Evidently, the big game has been dealt with by arrowheads and a long spear. From this very Period (IIA) there is definite evidence of tanged and barbed copper arrowheads with a mid-rib, which could have been utilized with a deadly effect in the big game. Obviously these tools were widely used up to the Megalithic Period i.e. Period III.

Arrow-head is a lighter, easy-to-make and the most accurate multipurpose weapon as compared to spearhead, this account for the fact that against (86) spearheads there are 300 arrowheads in the Burzahom collection. Out of 300 arrowheads, thirty (30) outstanding specimens with their sub-types have been elaborated and illustrated on the basis of size, formation of piercing points and shafts, method of hafting (Fig. 4.3.21 nos. 1 to 18 and Fig. 4.3.22 nos. 19 to 30).

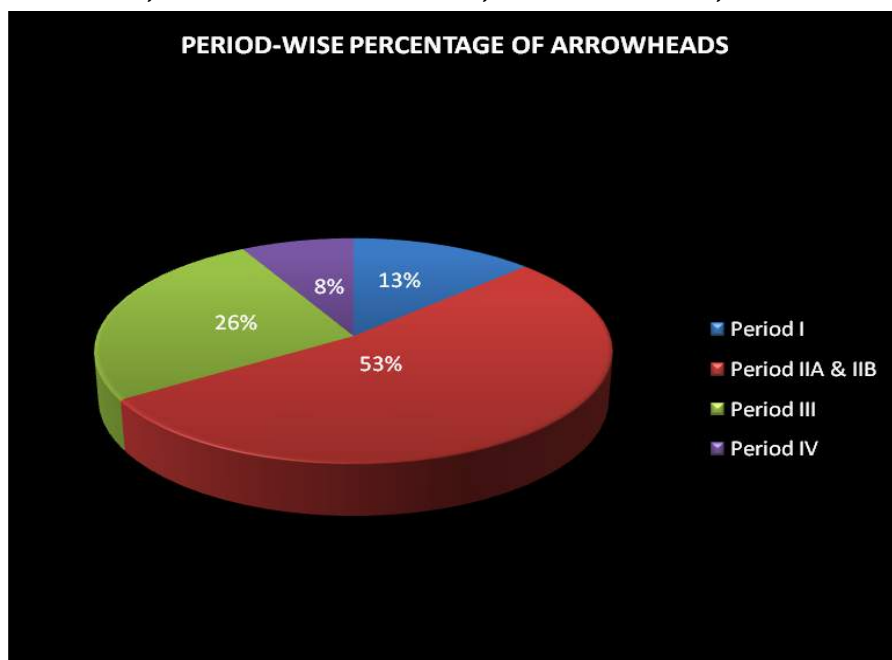
The period-wise distribution of three hundred arrowheads is as follows:

Period I: 38, Period IIA&IIB: 154, Period III: 76, Period IV: 22, Un-stratified Levels and Surfaces -10.



Excluding specimens from Un-stratified levels and surfaces, the total number of arrowheads is 290; accordingly their period-wise percentage works out as follows:

Period I: 13%, Period IIA & IIB: 53%, Period III: 26%, Period IV: 8%.



As told earlier that arrowheads have been primarily differentiated on the basis of size, formation of piercing point, and technique of hafting. The small sized arrowheads range between 37 mm and 50 mm long and 5 mm to 9 mm in width. The medium sized specimens' measure between 50 and 65 mm in length and the width in this category ranges from 7 to 13 mm. The large sized arrowheads measure above 65 up to 76 mm. The maximum width in this category ranges from 7 to 14 mm. Among the illustrated types the smallest specimen is 37 mm (no. 20a) and the largest is 76 mm (no. 19). The minimum width is 5 mm (no. 20b) and the maximum width is 14 mm (no. 2). The specimen represented as no. 28 has the largest piercing point (operative part), which being 27 mm long. The shortest is less than 7 mm (no. 21b).

Thirty (30) assorted examples have been illustrated here with a few variants on the basis of variations in fabrication of the shafts, relative length of points and method and manner of providing tang for hafting. Most of the shafts have been neatly dressed, smoothed and ground effectively. With a few exceptions, the workmanship is generally good and excellent in a few cases. The transverse sections in the central part are concavo-convex, flattened oval, oval, oval to rounded, trapezoidal or triangular. In a few cases the sections are irregular. Surfaces are mostly glossy, and highly glossy in a number of specimens.

Maximum workmanship is confined to the formation of the piercing point and the tang. The operative parts are long, medium or short. For this purpose, the lateral

margins taper off sharply from the mid-point to form points, which are pretty slender towards incisive tips. The operative parts are either rounded or else flattened oval in section towards the tang, towards operative tip invariably rounded, excepting some isolated specimens. The tips are mostly sharp or incisively sharp, however, nos. 15, 16, 20a and 21b have short, sturdy, and blunt tips.

Regarding the provisions of tang, various convenient methods have been employed for hafting the tools. The common method is lateral whittling and scrapping from mid-point and partial facial whittling, generally near the lowest 1/3rd of the tool. Whittling may be marginal or prominent. The whittled portion may be smoothed partially or fully and in a few cases left rough with a few cuts for a proper grip. However, in certain cases both the margins have been whittled and scraped with minor facial whittling, pattern being the same as indicated above. Sometimes when nominal or partial whittling is resorted to, the grip is made effective by laterally and facially cuts, oblique or straight near the lower end. The distinctive types in relation to techniques employed are nos. 1, 2, 7 and 8, and its variants, nos. 14, 18, 20c, 22 and 25.

Interestingly some examples seem to be double-tipped (nos. 20 and 20a), in which case one of the points is functionally not useful. Therefore, it is quite likely that such formation may have been due to excessive whittling during fabrication. This is apparent on the basis of no. 20d where the tanged portion is approaching a point due to excessive whittling. In case of no. 20c the lower part has been ultimately nicely rounded, the end being stocky.

Stratigraphically, the illustrated specimen nos. 11, 19, 21b, 23b and 28 represent Period I, nos. 4, 5, 6, 8, 17, 21a, 23, 24, 25, 26, 27, 29a and 30 stand for various levels of Period IIA, nos. 1, 7, 10, 12, 15, 18, 19a, 20, 20a, 20b, 20c, 21, 22 and 29 correspond to Period IIB, nos. 2, 3, 8a, 8b, 9, 13, 16, 19b and 23a belong to Period III, no. 20d fit in Period IV, and no. 14 goes to an Un-stratified Level or Surface. It is evident that in relation to technique employed for hafting, as also formation and fabrication of the shaft, the process is simpler and less evolved in Period I. It improves successively in the subsequent Periods. Thus, nos. 6, 8 and 25 belonging to Period II A, are fully evolved, no. 8a displaying skilled workmanship. This process continued up to the end of Period III.

There is one specimen of stone arrowhead represented by no. 30, showing crude workmanship. It is from Period II A.

Characteristically, size apart, in case of the arrowheads, the tang is more conspicuous as compared to the spearheads.

No. 1: Complete and a distinctive type. Shaft has been effectively dressed, smoothed and ground, showing fine sides. Surfaces are highly glossy. One side from mid-point has been whittled and smoothed for effective hafting. One face of the tanged part has also been thinned down by whittling for this very purpose. Operative part with a slender point and incisive tip tapers off sharply for the required purpose. In section the upper 1/3rd of tool has been rounded while in the central part, which has a minor concavity, it is flattened oval. Length is 60 mm. Period IIB

No. 2: Complete. Shaft dressed and smoothed properly to form a slender point with an incisive tip. There is a minor concavity in the lower 2/3rd of the tool. Section of the operative part is flattened oval and rounded near the tip.. Tang has been secured by partially whittling. The lateral margin in the lower 1/3rd portion, which is also subjected to rough cuts up to the end for proper hafting. Surfaces are glossy to highly glossy in the upper 2/3rd of the tool. Length is 69 mm. Period III

No. 3: Complete. Major part of shaft adequately dressed and smoothed, one face shows a minor concavity below mid-point due to natural hollow of bone, section being irregular. Section of the operative part rounded near the incisively sharp tip and oval down below. Tang has been secured by lateral whittling below mid-point with oblique cuts near the lower end. Surfaces are highly glossy. Length is 60 mm. Period III

No. 4: Complete except for broken tip. Smoothing and grinding are poor. Inner face shows a few deep scars with traces of cancellous tissues, and the outer face is smooth and flat. Sides are faceted to round; operative slender point is oval to round. Surfaces are glossy. Tang is less conspicuous, secured by an oblique lateral cut; the same is also made on the flat face near the lower end. Length is 60 mm. Anticipated length is 62 mm. Period II A

No. 5: Complete. Shaft rather roughly dressed and smoothed. The Section of the operative part has been rounded near the tip and irregular below operative part.. Sides taper off sharply above mid-point to form a piercing point, though relatively less incisive. Surfaces are moderately glossy, rough partial whittling laterally below mid-point and minor oblique cuts near the lower end for hafting. Length is 70 mm. Period II A

No. 6: Complete except for broken tip. It has been adequately dressed and smoothened to get highly glossy surfaces. Below rounded operative tip there is a marked concavity. The section is rather irregular. Plane face is whittled laterally with a smooth taper below operative part for hafting. There is a minor cut on plane face at the lower end. Length is 66 mm. Anticipated length is 68 mm. Period IIA

No. 7: Complete except for broken tip. The outer face is smoothed and highly glossy, the other one shows minor concavity below operative part with bits of cancellous tissues. Surface is partially glossy. Operative point has been shaped by conspicuous oblique whittling and smoothing above mid-point. Section of the operative part is oval to round near tip and irregular below it. Tang has been secured by rough cuts on one face as well on lateral margins. Length is 56 mm. Anticipated length is 58 mm. Period IIB

No. 8: Complete. Effectively dressed and smoothed. Surfaces are highly glossy. Operative part, round in section, is long and slender terminating in an incisively sharp tip. The left lateral margin has been whittled forming some sort of a cusp with rough oblique cuts on the outer face near the lower end. The inner face below the mid-point has been whittled presenting a bevelling effect. Length is about 61 mm.

No. 8a: Complete except for broken point. It is a variant of the preceding but relatively crude in workmanship. Shaft in section is round above the mid-point and irregular below. Lateral whittling below the mid-point is evident and comparatively fewer rough cuts near lower end. Surfaces are partially glossy. Length is 55 mm. Anticipated length is 60 mm. Period III

No. 8b: Complete except for broken point. It is a smaller variant of preceding two. Surfaces are highly glossy. Pattern of hafting is nearly the same as in the preceding one, however, with more rough cuts on one face. The slender point is round in section. Length is 37 mm. Anticipated length is 40 mm. Period III

No. 9: Complete except for broken point. Shaft nicely dressed and smoothed. Surfaces are glossy to highly glossy. Rounded upper 1/3rd part forming a relatively short operative point, which is thick. For hafting below operative part, it is unilaterally whittled and smoothed and bears a cut near lower end for this purpose. There is a minor concavity on one face below operative part. The section is roughly rectangular with rounded corners. Length is 51 mm. Anticipated length is 52 mm. Period III

No. 10: Complete except for broken tip. The inner Face of bone below mid-point is not properly smoothed; cancellous tissues are visible. Section in the lower 2/3rd part is almost rounded rectangular. Surfaces are glossy. Lateral whittling in the lower part has been restored for the tang. The upper 1/3rd portion, forming operative part, is partly oval and rounded towards the tip. Length is 52 mm. Anticipated length is 53 mm. Period IIB

No. 11: Complete except for broken tip. Good workmanship, surfaces are glossy. There is a marked concavity on one face below the operative point due to of bone. Point has a partly oval and partly rounded section which becomes concavo-convex towards tang. There is a marked unilateral oblique cut with marginal whittling from mid-point up to the tang. Length is 57 mm. Anticipated length is 59 mm. Period I

No. 12: Complete except for broken tip. Smoothing is upto the mark. Surfaces are glossy to highly glossy. Point is long, sturdy and neatly rounded; section below operative part is roughly triangular. The ridged shaft below operative part is laterally whittled and slightly smoothed. There are some minor unilateral rough cuts in lower part in addition to an oblique cut near the lower end for hafting. Length is 60 mm. Anticipated length is 63 mm. Period II B

No. 13: Complete except for broken tip, relatively shorter but stocky point. Surfaces are rather highly glossy. Section of the operative part is oval to rounded and conical for major portion of the shaft. Entire shaft below operative part is roughly whittled, in addition a prominent oblique cut along with few minor cuts at lower end are also roughly executed, all meant for hafting. Length is 71 mm. Anticipated length about 75 mm. Period III

No. 14: Complete, a distinctive type. Natural contours skillfully utilized in fabrication. Dressing and smoothing are perfect. Surfaces are glossy. Upper 1/3rd of tool has been shaped and smoothed, section being flattened oval and sides taper off sharply to form a blunt point. The section of the rest is irregular. Operative part is relatively shorter, below it shaft is whittled and bears a rough cut near the lower end, besides there is a conspicuous ridge on its lower portion. These features provide an effective tang. Length is about 77 mm. Unstratified

No. 15: Complete and distinctive type. Shaft nicely dressed and smoothed and laterally rounded. Surfaces are highly glossy. Operative point with a blunt tip is short, stocky and rounded. Below it one face has a marked concavity, the other one shows a diagonal ridge below operative part, section is concavo-convex. No marked workmanship is evident in working tang except minor rough cuts on the lower end. Length is 64 mm. Period IIB

No. 16: Complete. Shaft roughly dressed but effectively smoothed. Surfaces are highly glossy. Operative part is short, stocky and oval to round in section, terminating in a rather blunt point. Section below operative part is irregular. Lower portion roughly whittled with an oblique rough cut in the lowest part for hafting. Length is 59 mm. Period III

No. 17: Complete. Adequately dressed and smoothed. Surfaces are partially glossy. Operative piercing part, though short, is slender, rounded and incisively sharp tipped. Section below operative part is irregular upto mid-point and roughly oval further below. Marginal whittling in the lateral margins duly end smoothed in the lower part with a few rough cuts are visible. Length is 54 mm. Period IIA

No. 18: Complete, distinctively shaped except for a facial break in upper part. Dressing and smoothing is good. Operative portion is normal, slender and rounded with an incisive tip. Below it, shaft has been whittled, partly leaving a central ridge on one face, thus forming a conical section. It is also thinned down towards lower end in addition to few rough cuts, obviously for effective hafting. Length is about 52 mm. Period IIB

No. 19: Complete, except for broken tip. Neatly dressed, smoothed, effectively ground and roughly rounded shaft. Surfaces are highly glossy. Operative point is short, slender, rounded with an incisive tip. No marked workmanship is in evidence for hafting except for marginal whittling duly smoothed in the lower part with a minor oblique cut at the lower end. Length is 75 mm. Anticipated length is 77 mm. Period I

No. 19a: Complete and a variant of the above. Surfaces are glossy and highly glossy in upper part. Operative point is normal, slender and rounded with a sharp tip. Shaft is rounded in section. There are minor rough cuts on the lower end. Length is 67 mm. Period IIB

No. 19b: Complete. Surfaces are glossy and upper part is highly glossy. Operative part is relatively short and stocky with a conical section. Shaft is almost rounded triangular in section, with a minor oblique cut near the lower end. Length is 68 mm. Period III

No. 20: Double-pointed, complete except for the tip of shorter point. Distinctive type, shaft properly dressed, smoothed and ground. Roughly triangular in shape above and below the mid-point there is a common base. Placed horizontally it is parallelogrammic in form. Section for major part of shaft is rounded rectangular, oval towards larger point and flattened oval towards shorter one. Surfaces vary from partly glossy to highly glossy. Laterally whittled and smoothed with a taper off towards both ends from the widest part to form points. Length is 66 mm. Anticipated length is 68 mm. Period IIB

No. 20a: Double-pointed, complete. Adequately dressed, smoothed and ground. It is the smallest specimen among the illustrated examples. In section it is quadrilateral at the widest portion. Shaft in section is rectangular on shorter end and rounded towards larger point which has blunt tip with reddish tinge. The shorter has a knife like point with conical section. Surfaces are glossy. Length is 38 mm. Period IIB

No. 20b: Double-pointed, complete. Carefully dressed and smoothed. Surfaces are partially glossy. Section of the widest portion and that of shorter blunt point is oval and flattened oval of larger one, which is slender and incisively sharp. Length is 40 mm. Period IIB

No. 20c: Double-pointed, complete. Carefully dressed and smoothed. Section in central 1/3rd part is roughly conical to rounded and rounded towards both points. Surfaces are highly glossy. The piercing point is larger, slender and incisively sharp. Shorter point is stocky, rounded and blunt. Length is 56 mm. Period IIB

No. 20d: Complete except for broken tip on the longer end. Surfaces are glossy. The Section at the widest part is quadrilateral. Operative part above mid-point properly dressed and smoothed, point being long, stocky and rounded. Shaft, partially smoothed below mid-point is roughly whittled, thinned down laterally for hafting and width being reduced considerably at the shorter end. This explains how this type might have ultimately turned into a double edged point due to re-fabrication after partial use. Length is 66 mm. Anticipated length is 68 mm. Period IV

No. 21: Complete except for broken point. A Smaller type well dressed and ground. Surfaces are glossy. Section is oval to round in central part and oval towards point. Its shaft, thinned down with a smooth tapering, bears rough cuts on either face in the lower part for effective hafting. Piercing point is normal. Maximum width is 8 mm. Length 41 mm. Anticipated length is 45 mm. Period IIB

No. 21a: Complete except for broken tip. Properly dressed and smoothed with traces of cancellous tissues on one face. Surfaces appear highly glossy. Section is uniformly oval. No special workmanship is in evidence for hafting. Piercing point is normal. Maximum width is 7 mm. Length is 45 mm. Anticipated length is 48 mm.

No. 21b: Complete. Well dressed and shaped. Surfaces are mostly non-glossy. Shaft is rounded; section is almost oval except in the lower part towards tang where it approaches conical to round. Maximum width is 8 mm. Length is 42 mm. Period I

No. 22: Complete. Highly glossy long and sharp piercing point, is well dressed and rounded. Shaft below mid-point has been rather roughly whittled laterally and smoothed on one face. Surfaces are non-glossy. Section at the widest point is rectangular. The lowest portion is thinned down for hafting. Maximum width is 5 mm. Length is 45 mm. Period IIB

No. 23: Complete except for broken tip. Good workmanship is evident in dressing and smoothing. Surfaces are glossy. The upper slender part has been rounded. Below it the shaft is oval and markedly flattened oval further below. Maximum width is 6 mm. Length is 39 mm. Anticipated length is 42 mm. Period II A

No. 23a: Complete. Surfaces are glossy. Operative part is oval to round towards tip, below it shaft irregularly rounded. Minor lateral cuts near the lowest end. Maximum width is 7 mm. Length is 42 mm. Period III

No. 23b: Complete except for broken tip. Surfaces are highly glossy. Slender operative part is efficiently rounded and below it the shaft is oval. There is a minor oblique cut at the lowest end. Maximum width is 6 mm Length is 44 mm. Anticipated length is 45 mm. Period I

No. 24: Complete. Smoothing and grinding are of high order. Surfaces are highly glossy. Piercing part is slender, incisively sharp and well rounded. Lower part is pitted on one face but effectively smoothed. There is a vertical cut in the left lateral margin and a minor oblique cut near the lower end which is properly smoothed. Section below operative part is irregular but approaches oval in the lower end. Maximum width is 9 mm. Length is 46 mm. Period IIA

No. 25: Complete, a distinctive type. Shaft is properly dressed. Surfaces are partially glossy. Piercing point is normal and well rounded but irregular downwards. The inner face has a minor concavity. . The other face has been roughly whittled, thinned down and smoothed, leaving a central ridge below operative part for hafting. Besides, there is a minor curved cut near the lower end. Maximum width is 10 mm. Length is 53 mm. Period IIA

No. 26: Complete except for broken tip. It is a well finished specimen with highly glossy surfaces. Lateral margins below operative part are straight and well rounded. Piercing point efficiently rounded towards tip and oval below it. Further below. The shaft is flattened oval in section and there being a minor concavity in the lower 1/3rd part of the inner face. Lower end is rounded in outline. Maximum width is 9 mm. Length is 59 mm. Anticipated length is 61 mm. Period IIA

No. 27: Complete and simplest, hence distinctive type. Well dressed and smoothed. The edges taper smoothly up from the lower end which is the widest part to form the long slender point with an incisive tip. Its operative part is round in section and below it flattened oval towards the hafting end. Maximum width is 5 mm. Length is 41 mm. Period IIA

No. 28: Complete. Workmanship is of advanced order. Surfaces are highly glossy. Operative part is rounded and progressively slender to form an incisive tip. Shaft below the mid-point has been flattened, edges tapered smoothly towards the lower end where it is thinner. Section below the mid-point is semi-circular. Maximum width is 7 mm. Length is 58 mm. Period I

No. 29: Complete. Workmanship is normal. Surfaces are glossy. Operative part is flattened oval, tip being sharp. Below it there is a minor concavity on one face, section approaching flattened oval. Lower part partially smoothed, laterally whittled and thinned down for hafting. Maximum width is 8 mm. Length is 58 mm.

No. 29a: Complete. There is a marked concavity on one face below operative part due to cavity of bone, section is concavo-convex. Surfaces are glossy. Operative part has a large point, slender in upper portion with an incisive sharp tip. Section being rounded in upper 1/3rd and flattened oval below. There are few oblique cuts on lower end to facilitate hafting. Maximum width is 7 mm. Length is 71 mm. Period IIA

No. 30: Complete. This is a solitary specimen in stone, roughly shaped like an arrow-head. Piercing point is rather thick, nearly triangular in outline with a blunt tip. Shaft bears a ridge on one face running from a little below the tip and terminating just above the lower end. It is roughly dressed and bears few scars and pits. The other face is roughly flat. No grinding is in evidence. Shaft has been thinned down to provide a prominent tang. Maximum width is 12 mm. Length is 60 mm. Period IIA

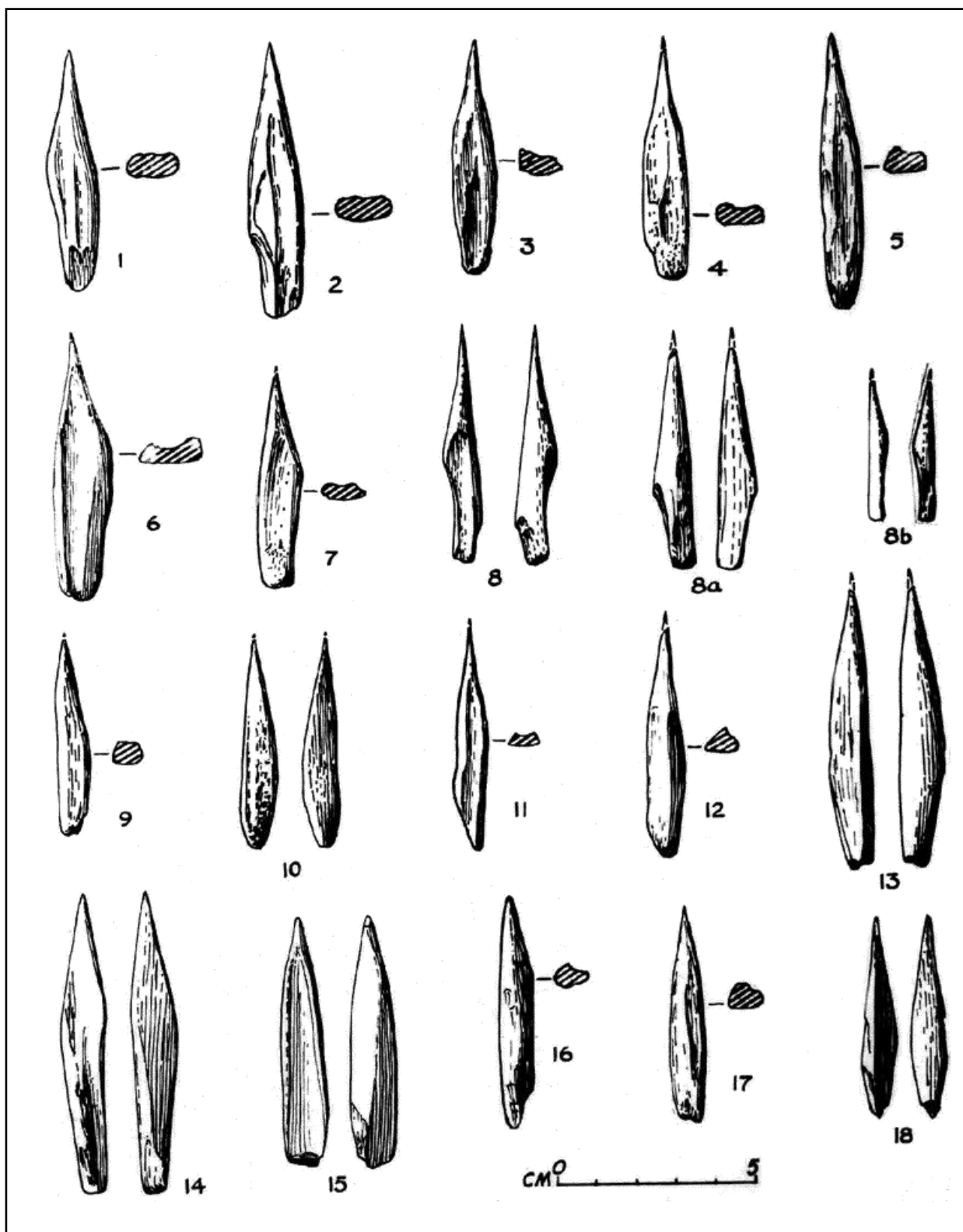


Fig.4.3.21 Single edged points (Arrow-heads)

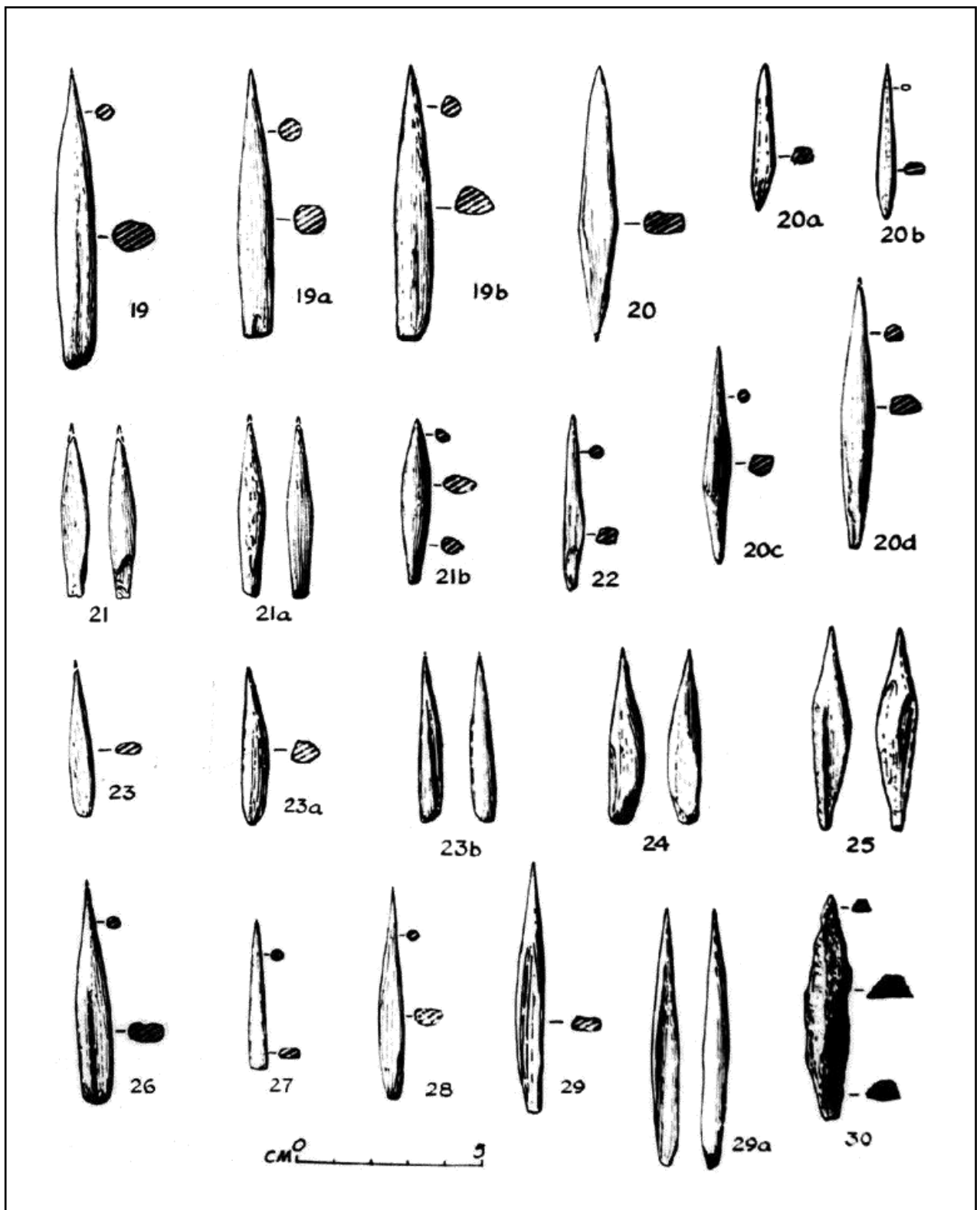


Fig.4.3.22 Single edged points (Arrow-heads)

SPEARHEADS

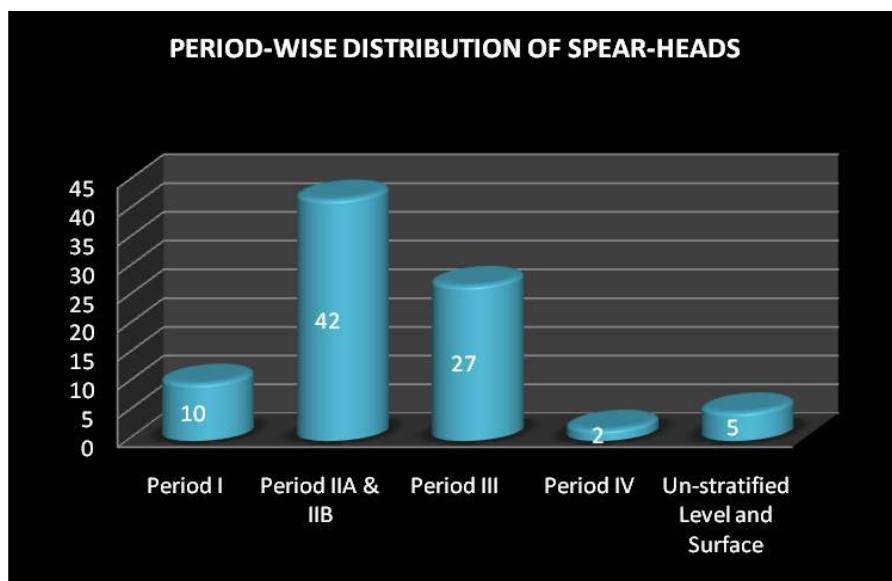
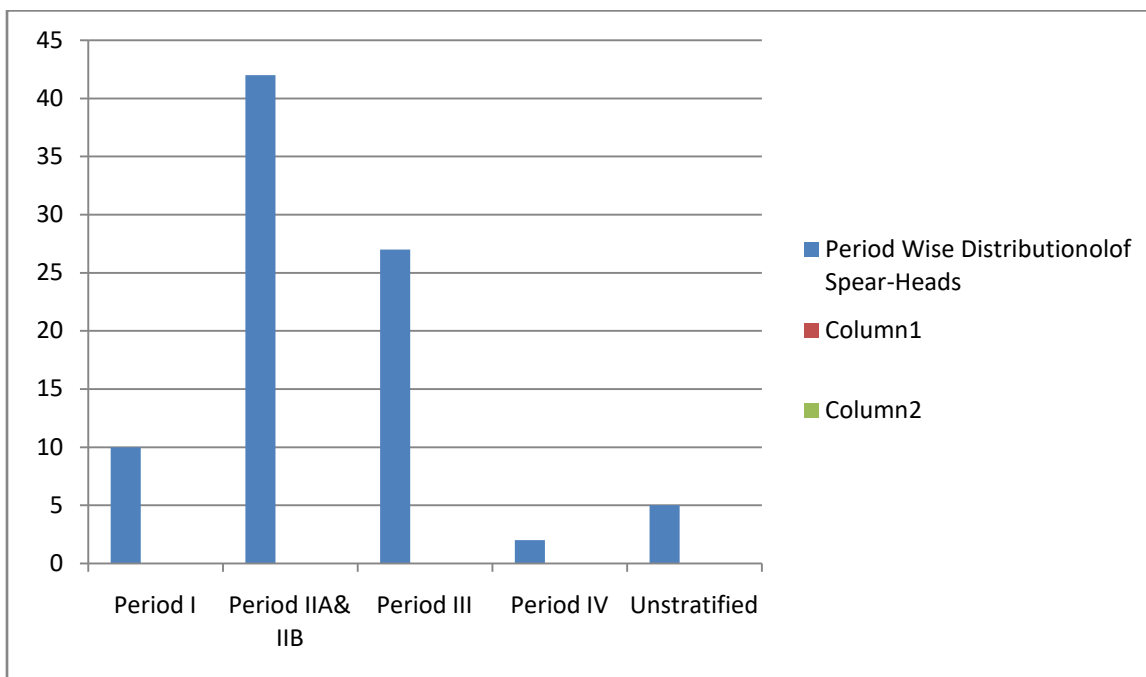
SINGLE -EDGED POINT

Spear is a relatively effective weapon in bringing down its object in close encounters. It was used in combination with bow-and arrow as evidenced in a hunting scene engraved on a stone slab unearthed at Burzahom. In the hunting scene indicative above, the huntress in an akimbo pose has thrust the spear into the body of the stag at its back, while an arrow has been discharged and another is in the process of being discharged.

Since spear is a large weapon and used in close encounters, unlike arrow there is less likelihood of spearhead being lost if it missed its aim. This may explain far less total number of spearheads from Burzahom, which being 86, compared to 300 arrowheads. Significantly, there is no spearhead in stone but two copper spear-heads have been recovered from the site. Moreover, arrow-heads in metal amounting to 4 (iron) and 7 (copper) have come across. It is apparent; therefore, that spear-heads must have been sparingly used compared to arrow-heads. This is understandable on the consideration that spear-heads must have been primarily meant for the big game, the arrow-head playing a supplementary role only in such operation, since in view of the small size these could have more profitably been utilized against the birds and light game.

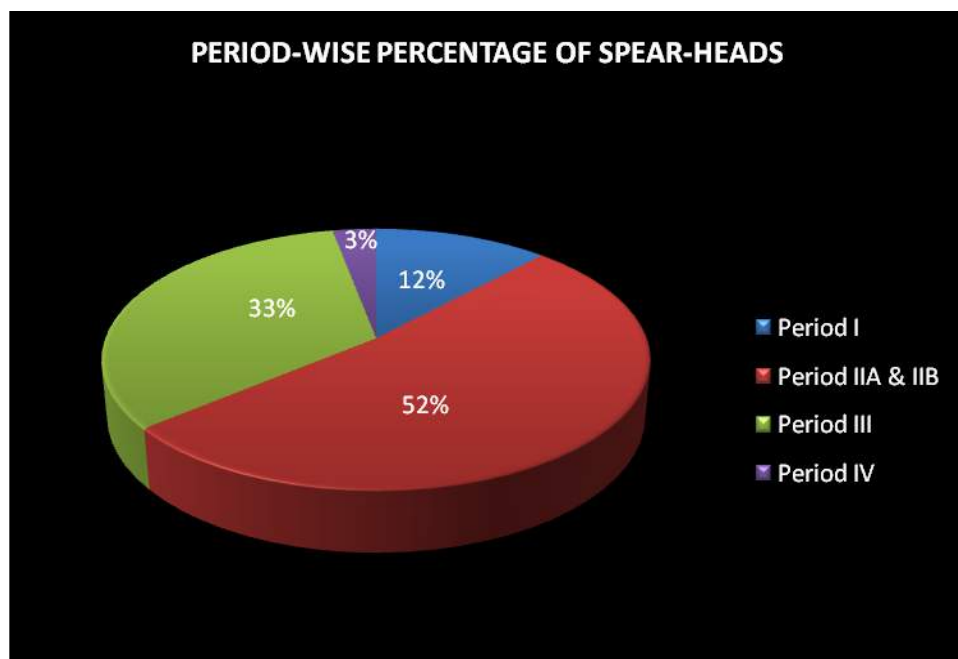
The period-wise distribution of eighty six (86) spearheads is as follows:

Period I: 10, Period IIA& IIB: 42, Period III: 27, Period IV: 2, Un-stratified levels and surface – 5.



Excluding specimens from Un-stratified levels, the period-wise percentage works out as follows:

Period I: 12%, Period IIA&IIB: 52%, Period III: 33%, Period IV: 3%.



There is no marked difference in typology between arrowhead and spearhead; therefore, in this case also classification is based mainly on shape, size and technique of fabrication.

Among the illustrated examples nos. 6a, 9, 10, 13 and 22 are from Period I, nos. 1, 3, 4, 4a, 5a, 7, 8, 12, 13a, 17, 18, 19, 20, 20a, 20b, 21, 23, 23a and 23c are from Period II A, nos. 2, 6, 11 and 17a are from Period II B, nos. 14, 15, 16, and 17b are from Period III and nos. 5, 23b, and 24 are from the Surface (Fig. 4.3.23 nos. 1 to 13a and Fig. 4.3.24 nos. 14 to 24).

No. 1: Complete and distinctive type. Shaft dressed properly, smoothed and ground effectively from mid-point towards operative part, below roughly dressed for effective hafting. Tang has been secured by rough dressing, irregular whittling in the lateral edges. Thus reducing the width in the lower part. Section above mid-point is oval to round towards the tip, and approaches concavo-convex below it. There is a central ridge between the point and the tang on concave face. Sides taper off sharply from mid-point towards flattish tip to form a long, sturdy point. Surfaces are partially glossy above mid-point. Length measures about 99 mm. Period IIA

No. 2: Complete except for broken tip. Surfaces are partially glossy. The Shaft has been dressed well, smoothed and ground except in the lowest part. Lateral edges have been nicely dressed and smoothed. Tang has been secured by a sharp taper in the lowest part, which is roughly whittled and thinned down terminating in an irregularly shaped thick point. Major part of shaft bears a minor natural concavity on one face; the other

face is smooth and flat with an irregular section. Section near point is trapezoidal. Maximum width is 14 mm. Length is 92 mm. Anticipated length is 100 mm. Period IIB

No. 3: Complete except for broken tip and a distinctive type. Surfaces are glossy in upper 2/3rd part towards point. Shaft is properly dressed and smoothed. Point is long, shaft being oval to round above the lower 1/3rd part of the tool and neatly rounded towards point; sides taper off sharply to form a slender point. Section of lower 1/3rd part of tool is irregular. For hafting, lateral edges have been roughly whittled, thinned down and partially smoothed. Maximum width is 9 mm. Length is 94 mm. Anticipated length is 99 mm. Period IIA

No. 4: Complete. Shaft is dressed, smoothed and ground except towards tang. Surfaces are glossy and partially glossy in lower part. Maximum workmanship is evident in fabricating point, which is large, rounded and tip being sharp and incisive. Lower 1/3rd part is roughly dressed, thinned down and smoothed for effective hafting. Lower end is knife like thin. Length is 75 mm. Maximum width is 6 mm. Period IIA

No. 4a: Complete. Shaft is smoothed and ground. Surfaces are highly glossy. Section of shaft is oval; laterally it tapers off smoothly to form a large, neatly rounded operative part above mid-point, tip being sharp. Lower 1/3rd part of tool is properly whittled and smoothed for hafting. There is also a cut on the lower end. Length is 77 mm. Maximum width is 7 mm. Period IIA

No. 5: Complete except for broken tip. Good workmanship is in evidence. Surfaces are highly glossy. Shaft approaches concavo-convex in section below the mid-point, above it oval except for neatly rounded operative part. The left lateral edge below the mid-point has been roughly whittled and there is an oblique cut in the lowest part for effective hafting. Length is 75 mm. Anticipated length is 78 mm. Maximum width is 11 mm. Unstratified

No. 5a: Complete except for broken tip. Workmanship mainly confined to the portion above the mid-point. Surfaces are partially glossy. Sides taper off sharply above mid-point to form a large point, which has been rounded and partially the outer face has been roughly whittled and hafted.. Length is 66 mm. Anticipated length is 73 mm. Period IIA

No. 6: Complete. This is the longest spearhead from Burzahom. Shaft is dressed and smoothed. Surfaces are glossy to highly glossy. Sides taper off sharply above mid-point to form a large sturdy point terminating in a blunt tip. Upper 1/3rd of tool is partly oval to round whereas lower 1/3rd is laterally whittled, slightly thinned down and smoothed

for hafting, section approaching triangular in shape. Maximum width is near the center being 13 mm. Length is 116 mm. Period IIB

No. 6a: Complete, except for broken tip. Very good workmanship is evident in dressing and smoothing shaft. Surfaces are highly glossy. Slight unilateral chipping in lower part with an irregular cut on the bottom for hafting. Section in upper 2/3rd part is oval to round towards tip. Maximum width is 13 mm. Length is 90 mm. Anticipate length is 94 mm. Period I

No. 7: Complete and a distinctive type. Major part of shaft is dressed, smoothed and ground. Surfaces are glossy to highly glossy. Shaft has been carefully dressed and smoothed; section is trapezoidal above mid-point, and rounded towards tip, which is incisively sharp. The right edge and partially the outer face for the lower 1/3rd part of the tool have been roughly trimmed for effective hafting and the left edge is roughly whittled. It is a sturdy tool. Section is trapezoidal above the mid-point, but rounded in the upper part and the tip being incisively sharp. Maximum width is 14 mm. Length is 113 mm. Period IIA

No. 8: Complete and a distinctive type. Roughly trimmed and whittled edges below mid-point up to the lowest part of tool. Shaft has been dressed well and the outer face is smooth. Minor traces of glossiness are evident. The widest part is near mid-point. Section below mid-point is irregular. Skillfully fabricated operative part is long and sturdy with a sharp tip, which is conical in section in the upper part. Maximum width is 17 mm; it is the widest tool in this collection. Length is 99 mm. Period IIA

No. 9: Complete, except for broken tip. Surfaces are partially glossy. Shaft dressed well in upper part and in the inner face. The outer face has been halfway slashed off below the mid-point with nominal smoothing for effective hafting. Thus, the tang is distinctive. There is a minor concavity on one face in major portion of shaft. Operative part is comparatively shorter and approaching rounded in section. Maximum width 12 mm. Length is 82 mm. Anticipated length is 88 mm. Period I

No. 10: Complete, except for the operative part which is short, broken and rounded. Shaft above mid-point has been properly dressed. Surfaces in the outer face and also in the edge above the mid point are highly glossy. Face with natural hollow of bone has been slashed 1/3rd in thickness from nearly mid-point towards tang and then marginally smoothed. The other face is smooth. One side in lower part of tool has been roughly trimmed for effective hafting. Thickness below mid-point is 2 mm. Maximum width is 11 mm. Length is 79 mm. Anticipated length is 81 mm. Period I

No. 11: Complete, except for broken tip. Major part of shaft nicely dressed. Surfaces are glossy, operative part being highly glossy, large, slender and piercing, section being oval to round. Below it, lateral edges rounded in central 1/3rd part, section approaching concavo-convex. Lower 1/3rd of tool and also the inner face has been whittled and trimmed to facilitate hafting. Maximum width is 9 mm. Length is 77 mm. Anticipated length is 78 mm. Period IIB

No. 12: Complete. Piercing point is long, sturdy, and sharp tipped. In section it is flattened oval to round conical towards tip. Shaft nicely dressed and smoothed. Lateral margins below mid-point are straight, section approaching flattened oval. Surfaces are partially glossy. There is minor concavity in lower 1/3rd part of the tool with cancellous tissues sticking out in the lowest part. No marked workmanship is in evidence for hafting except for an oblique irregular cut and partial thinning down at the lower end. Maximum width is 10 mm. Length is 77 mm. Period IIA

No. 13: Complete except for broken tip. Only upper part is glossy. In section the upper 1/4th portion is partly oval and oval to round towards tip. There is a cut along vertical axis on the left edge just below operative part. Major part of shaft dressed well except for one side, its section being irregular. For hafting, sides have been roughly whittled and nominally smoothed, in addition to an oblique cut and thinning down at the end. Maximum width is 9 mm. Length 97 mm. Anticipated length is 100 mm. Period I

No. 13a: Complete except for broken tip. Large point, partly oval and oval to rounded towards tip. Shaft is properly dressed. Section is irregular, and surfaces glossy. Tang has been secured by whittling and smoothing on either edge to reduce width without affecting thickness. Apparently, tang is rather short for the size of the tool. Maximum width is 8 mm. Length is 96 mm. Anticipated length is 102 mm. Period IIA

No. 14: Complete. Operative point is short; with an oval section, it has a sharp, rounded and highly glossy tip. Shaft roughly dressed but smoothed properly. The inner is spongy and the other one being smooth. Bone seems to have been slashed along vertical axis, thus exposing spongy core, the other face is partially glossy. There is a minor oblique cut in the lowest part on one margin. Section is rounded rectangular for major part of shaft. Maximum width is 11 mm. Length 94 mm. Period III

No. 15: Complete and distinctive type but roughly done. Shaft partially dressed, especially on right edge. Surfaces are partly smooth. There are some rough cuts in the upper part. For hafting, the right lateral edge has been roughly whittled. Operative point with minor cuts is short, thick, and in section oval to round towards tip. Maximum width is 9 mm. Length 75 mm. Period III

No. 16: Complete. Operative part is long with a smooth taper towards point, in section oval to round towards sharp tip. Shaft properly dressed. Surfaces are smooth. For hafting, lower 1/3rd part of the left lateral edge has been whittled roughly without any smoothing, With minor cuts at and near the end. Surfaces are partially glossy. There is a minor concavity in the inner face below mid-point. Maximum width is 8 mm. Length is 74 mm. Period III

No. 17: Complete except for broken tip. Operative part is long, slender but sturdy and in section oval to round towards tip. Shaft has been dressed, smoothed effectively. Surfaces are highly glossy, laterally neatly rounded. For hafting, marginal whittling is evident in the lowest part on one side. Section of the lowest part is rectangular, above it rounded rectangular. Maximum width is 10 mm. Length is about 80 mm. Anticipated length is 81 mm. Period IIA

No. 17a: Complete. Operative part is long but sturdy with an incisively sharp tip. Shaft is dressed, effectively ground and rounded laterally. In section upper 1/3rd part towards tip is rounded, central part is irregularly rounded and lower 1/3rd is flattened oval. For hafting, there is marginal whittling in lower 1/3rd of the tool. Besidethere is a minor oblique cut on the left edge in the lowest part and a rough cut at the lower end. Maximum width is 9 mm. Length is 82 mm. Period IIB

No. 17b: Complete except for broken tip. Operative part is slender and effectively pointed. Upper 1/3rd part from point towards tang is round in section, below that approaches rounded rectangular except for the lowest part. Shaft properly dressed and smoothed. Surfaces are partially glossy. In the inner face bits of cancellous tissues are in evidence.. For hafting face with cavity has been marginally whittled, its thickness reduced in addition to an oblique lateral cut in the lowest part. Maximum width is 8 mm. Length measures about 81 mm. Anticipated length is 82 mm. Period III

No. 18: Complete except for broken tip. Properly dressed and smoothed. Upper part of tool neatly shaped. It is thick and in section oval to round towards tip. Minor concavity on the inner face below the mid-point is noticed. Surfaces are partially glossy. Major part of shaft is irregular in section. For hafting no marked workmanship is in evidence except for unilateral whittling near the lower end, which also bears a rough cut on one face and a minor cut at the lower end. Maximum width is 8 mm. Length 73 mm. Anticipated length is 75 mm. Period IIB

No. 19: Complete except for broken tip. Operative part is short, stocky and rounded, Edges tapering off sharply to form an incisive tip. Sturdy and stocky shaft, irregular in section, dressed well, smoothed and ground nicely except for lower part where one face

bears minor concavity from bottom to operative part. Surfaces are highly glossy. For hafting, the tang has been conspicuously whittled and smoothed unilaterally up to a length of 37 mm from the bottom. Marginal whittling and smoothing are also noticed up to a length of about 25 mm above mid-point. Maximum width is 12 mm. Length 94 mm. Anticipated length is 97 mm. Period IIA

No. 20: Complete. Operative part is large, slender, and carefully rounded. Shaft dressed well excepting the inner face from mid-point towards tang. Surfaces are highly glossy. For hafting, the hollow face has been irregularly whittled for nearly 2/3rd of the tool with a central ridge, hence irregular in section. Marginal lateral whittling has also been resorted for this purpose. The tool is sturdy in spite of a relatively thin shaft. Maximum width is 7 mm. Length is 81 mm. Period IIA

No. 20a: Complete. Operative portion is large, slender and in section oval to round towards sharp tip. Shaft is dressed and smoothed. There is a concavity in the inner face below . The operative part and section is roughly concavo-convex. The other is smooth and the edges have been rounded. There are no marked attempts to facilitate hafting, except for lateral whittling and smoothing, in addition to a minor cut at lower end. The tool is sturdy in spite of a relatively thin shaft. Maximum width is 7 mm. Length 81 mm. Period IIA

No. 20b: Complete except for broken tip. Dressing, smoothing and grinding are normal with rough edges. Surfaces are partially glossy. Section is flattened oval below the working edge.. For hafting no special workmanship is in evidence, except a minor cut at the bottom and marginal whittling duly smoothed lateral margins. Maximum width is 7 mm. Length 69 mm. Anticipated length is 71 mm. Period IIA

No. 21: Complete except for broken tip. Operative point is normal in size, slender and incisive. In section it is oval to neatly round towards tip. Shaft dressed except the lateral margins. Surfaces are glossy. Section is irregular below operative part, but roughly approaches concavo-convex towards mid-point. The left lateral edge and partially the right margin too have been roughly trimmed for hafting. Maximum width is 10 mm. Length 83 mm. Anticipated length is 85 mm. Period I

No. 22: Complete except for broken tip. Operative point is large and rounded in section. Shaft properly dressed and smoothed. Surfaces are glossy. There is concavity in the inner face laterally faceted to rounded. For hafting, lateral edges slightly whittled, smoothed and thinned down with few cuts on the lower end. Maximum width is 9 mm. Length is 96 mm. Period I

No. 23: Complete except for broken tip. Operative part is large and oval in section. Below it section of the shaft is concavo-convex. It is properly dressed. Surfaces are mostly non-glossy. For hafting, one side below mid-point roughly whittled but not smoothed in addition to a minor cut at the bottom. Maximum width is 11 mm. Length is 98 mm. Anticipated length is 105 mm. Period IIA

No. 23a: Complete except for broken tip. Operative part is large and slender and in section flattened oval to round towards tip. Shaft properly dressed and smoothed but irregular in section. Surfaces are glossy. The shaft above the midpoint is flattened and the upper part of the inner face below the mid point is evidenced .Maximum width is 9 mm. Length 82 mm. Anticipated length is 92 mm. Period IIA

No. 23b: Complete except for broken tip. Operative part above mid-point is flattened oval and oval to round towards tip. Shaft dressed well and smoothed. Surfaces are glossy. There is natural concavity on one face below mid-point, section being irregular. For hafting, there are minor cuts near lower end of the face with cavity. Maximum width is 9 mm. Length 77 mm. Anticipated length is 84 mm. Unstratified

No. 23c: Complete except for broken tip. Shaft is dressed, smoothed and ground laterally shaped well. Surfaces are glossy to highly glossy in upper part. Section below mid-point is irregular. Operative part is large, neatly ground and slender. Section above the mid-point is oval to round towards tip. The tip indicates may have been used as a borer as well. Minor whittling in the inner face below the mid point shows the evidence for hafting. Maximum width is 12 mm. Length 90 mm. Anticipated length is 92 mm. Period IIA

No. 24: Complete except for broken tip. Operative part is fairly large and slender towards finely worked tip. It is round in section. Shaft is dressed, markedly smoothed and ground. Grinding striae are prominent. Surfaces are highly glossy and irregularly round. Inner face is slightly whittled and smoothed laterally in addition to few minor cuts near lower end for hafting. Workmanship is of high order. Maximum width is 10 mm. Length 95 mm. Anticipated length is 97 mm. Unstratified.

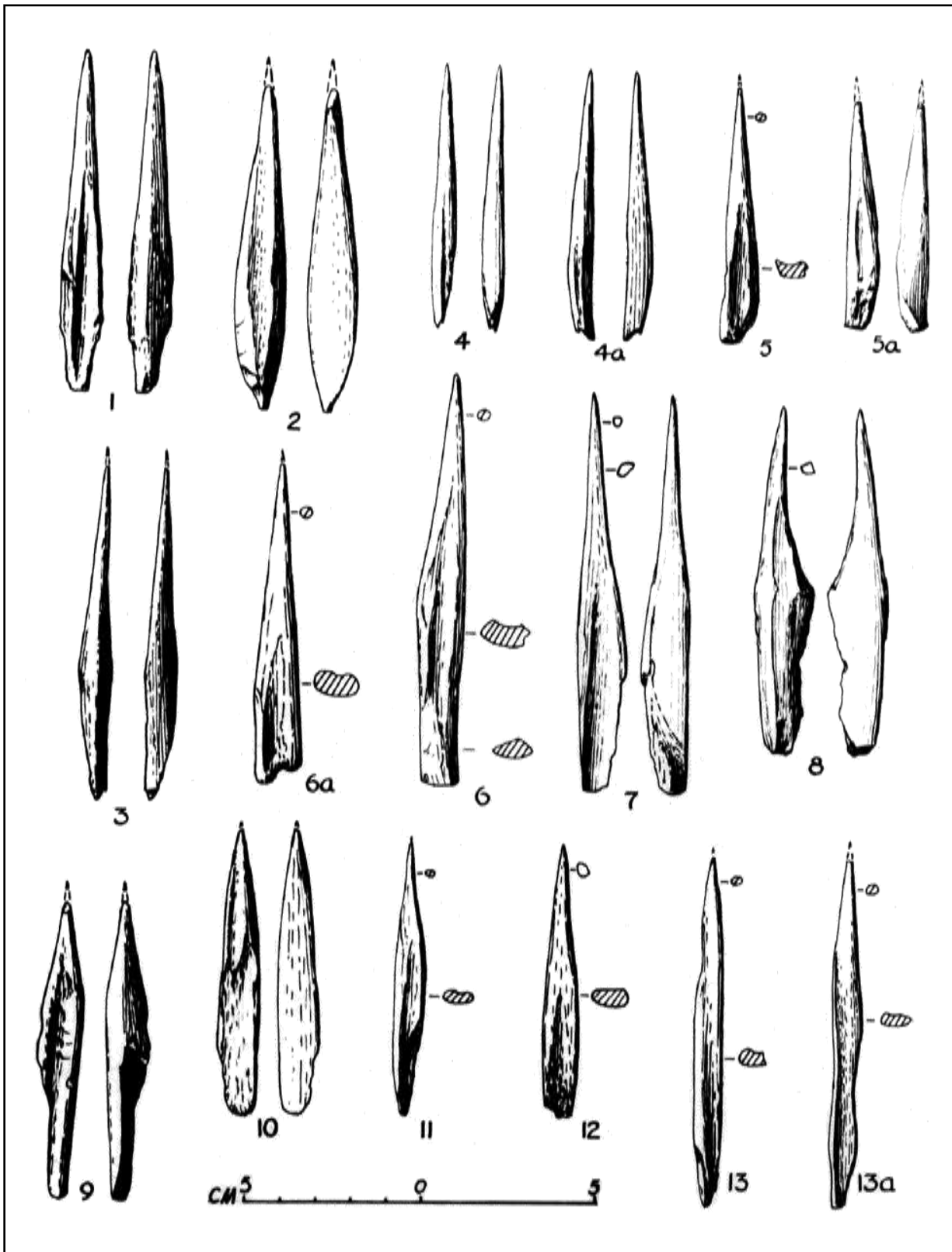


Fig.4.3.23 Single edged points (Spear-heads)

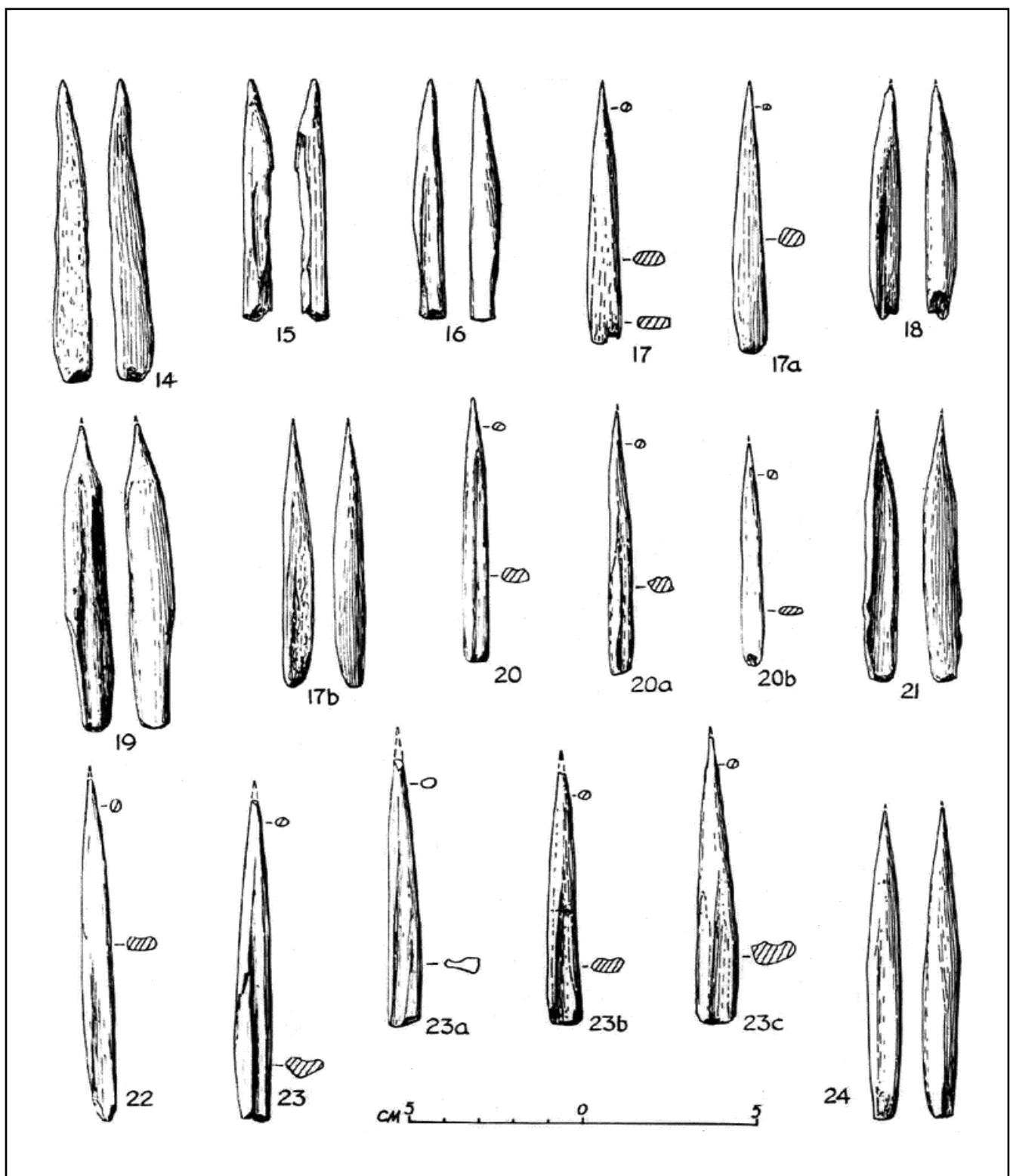


Fig.4.3.24 Single edged points (Spear-heads)

BARBED POINTS (HARPOONS)

The barbed points or harpoons from Burzahom are specialized tools. Their typology is prolific. The total number of barbed points recovered from Burzahom is 68. Among which twenty nine (29) assorted examples including few variants have been illustrated (Fig. 4.3.25 nos. 1 to 9, Fig. 4.3.26 nos. 10 to 15, Fig. 4.3.27 nos. 16 to 25 and Fig. 4.3.28 nos. 26 to 29,). This also includes solitary broken specimen in stone (illustration no. 12a) from Period III. The classification is based primarily on the number and types of barbs, formation of stem and tang, form, transverse and longitudinal sections, shape of the forepart and its tip. It seems that barbed points were used infrequently, which factor is responsible for breakages and as such only a few complete specimens have been found.

Burzahom is situated in the immediate vicinity of various kinds of water bodies such as streams, swamps and lakes. In view of that, fishing and fowling must have been profitable and important occupations. While net fishing may have been easier, harpoon fishing seems to have been in vogue. Significantly, there is no barbed point with perforation for attachment of line in the Burzahom collection, which being the characteristic feature of a harpoon. Therefore, we can visualize that the weapon under reference was used as a barbed spear in fishing and hauling up the catch, which practice is still in vogue in Kashmir in the clear waters of the lakes, where multi-pronged metallic harpoons are fixed on wooden shaft and more or less used like a spear in an upright posture from a boat which is softly paddled with one hand according to requirements. In this connection, it is also to be noted that in antiquity barbed spears were also used in hunting big games as evidenced in prehistoric rock paintings.

Barbed points have been fabricated mostly from rib fragments, although those from antlers are also found. Some of the types bear minute symbols perhaps intended for specific identifications. The fabrication of their stem, thinning down of the forepart and the tang, as also providing barbs of various shapes and sizes with tips, especially barbs with an angular profile attained by bevelling, scraping, notching, sawing, and paring, must have involved a good deal of skill and labour, and clearly indicates the high technical proficiency attained in fabricating these tools. The stems have been shaped by dressing and whittling, and smoothed by grinding. The stems, especially below the barbs, are generally rounded, irregularly or fully. In a few cases these are rectangular with rounded sides and curved in outline. In some distinctive cases the upper part of the stem including the forepart has been bevelled towards sides, on both the faces or on one face only forming a slight or marked midrib, hence in section

parallelogrammic, polygonal, or triangular. Sides taper off smoothly towards the tip of the forepart which is rounded in outline, and sharp, blunt, or flattish. Where the forepart is generally triangular in outline with sharp edges. Laterally shaft is mostly straight and tapers off smoothly towards the tang. The tip of the tang is mostly pointed, either sharp or blunt otherwise no special workmanship is in evidence for hafting.

Among the illustrated examples nos. 28, 28a, and 29 form a distinct category, as these have serrated margin on one side. It may be pointed out that while no. 28 is found from an Un-stratified Level or Surface, nos. 28a and 29 are from Period III. Such types are conspicuous by their absence in the early levels.

The barbs present a complicated pattern, which cannot be set within the scope of a formula. The proportions of the forepart, stem and tang are not determined by the number and form of barbs. Rather these were either determined by artisans' skill, or else use requirements. In terms of number, fabrication and size of the barbs there is a wide variation, however, owing to breakages it is not possible to present a clear picture. A few specimens have a single barb, or there are two barbs either on the same side or one each on either side. In case of three barbs, two barbs are on one side, and the third on the other side, or all the three barbs are on one and the same side (nos. 21 and 21a). Few specimens are with four barbs, three barbs on one side and the fourth on the other or two barbs each on either side at equidistance from the tip (no. 26). And finally there are the multi-barbed types (nos. 27, 28, and 29). Barbs have been worked by notching, bevelling, paring or sawing. Evidence for notching and sawing on the stems is clearly available. Position of barbs is sometimes markedly indicated by oblique or straight cuts along the vertical axis on the stem, and then further fashioning by sawing. In case of multi-barbed types, parts of the stem have been properly bevelled sharply or smoothly to space out the barbs effectively. Barbs may be short or large, and, in a few specimens, only incipient. Single or double-edged sawing knives could have done the job. Besides, scrapers and light chisels are also useful for the purpose.

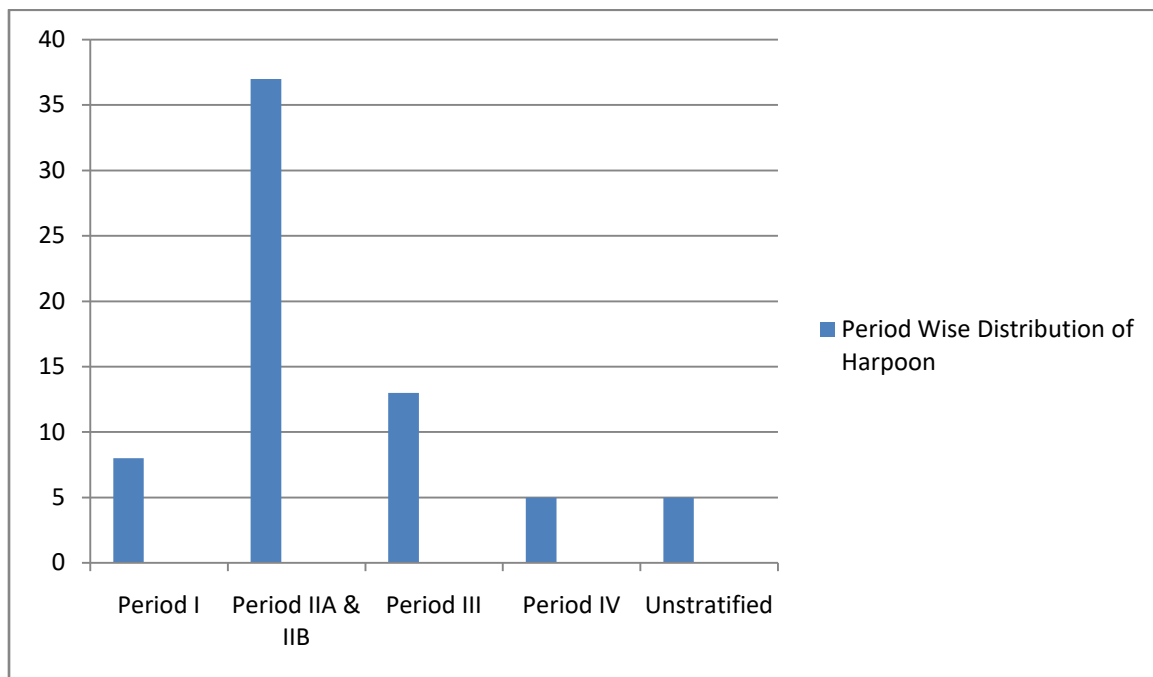
Barbs are short or long, protruding sharply at an acute angle, or projecting obliquely, or angular in profile (nos. 10, 20, and 23) with sharp or thick tips. Barbs with an angular profile are scarce. There are no specimens of upturned barbs. Some of the barbs are triangular in outline, tapering towards tip. Barbs are spaced closely, evenly or widely. Surfaces are generally smooth. The only technique so far noticed for hafting is thinning down the shaft at the required end.

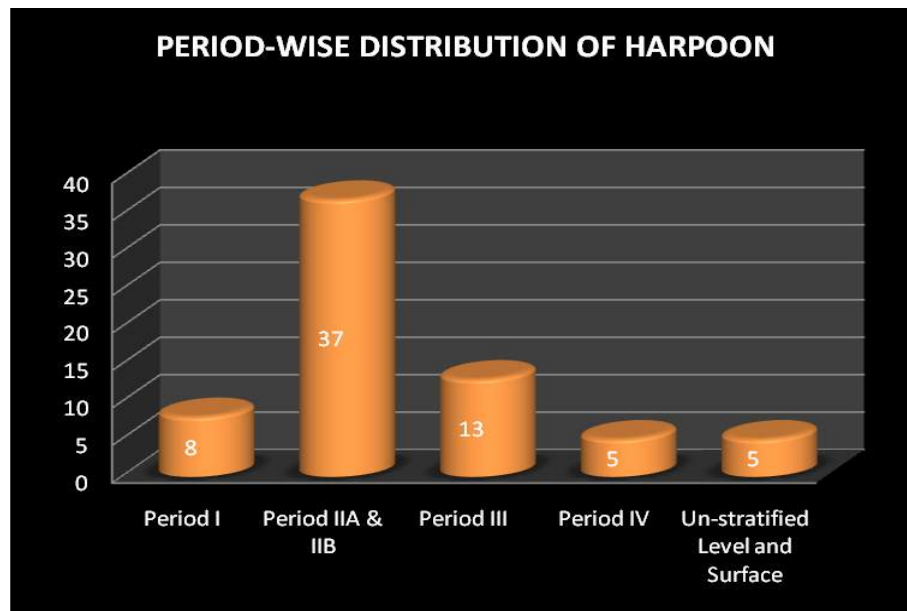
An interesting feature of the barbed points is intentional incision of various geometric motifs depicting different combinations of lines arranged in vertical, horizontal, oblique or criss-cross ways, which do not seem to have any functional utility in wielding the weapon. However, these might represent specific identification marks.

From the stratigraphical point of view, nos. 6, 11, 13, 17, and 21 are from Period I, nos. 1, 3, 4, 5, 8, 11a, 12, 15, 16, 18, 19, 20, 22, 23, 24, and 27 are from various levels of Period II A, nos. 7, 10, 11b, 14, 21a, and 26 are from the Period II B, nos. 9, 12a, 15, 28a and 29 are from Period III, and nos. 2, 25, and 28 are from Un-stratified Levels or Surface.

The period-wise breakup of 68 harpoons is as follows:

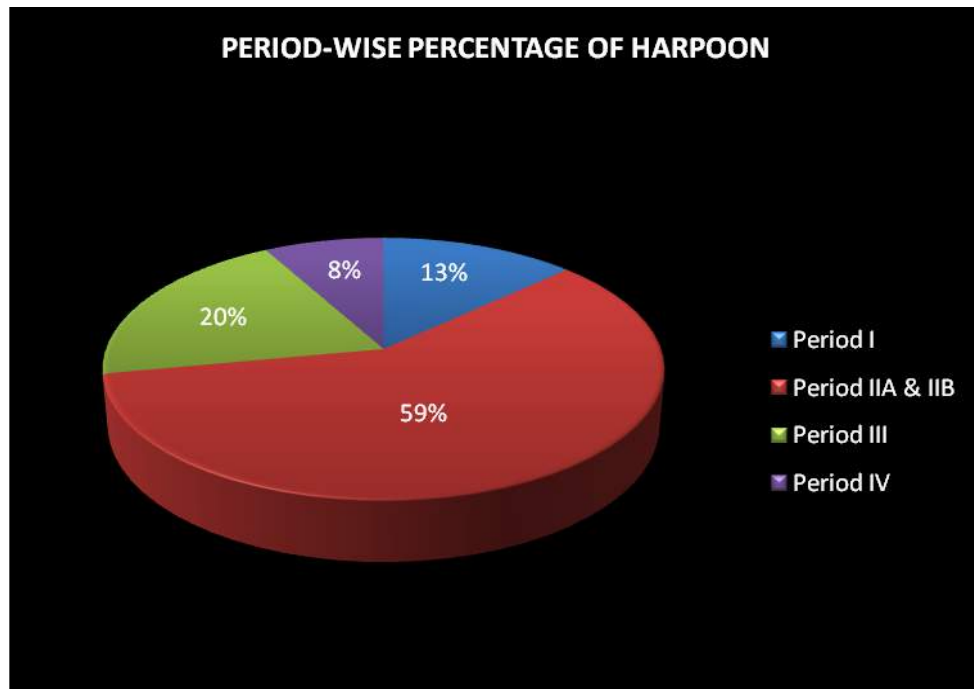
Period I: 8, Period IIA&IIB: 37, Period III: 13, Period IV: 5, and Un-stratified and Surface - 5.





Excluding specimens from Un-stratified levels, the period-wise percentage of harpoons is as follows:-

Period I – 13%, Period IIA&IIB: 59%, Period III: 20%, Period IV: 8%.



The assorted tool types are described below:

No. 1: Complete except for tip of the tang and the projected tip of barb which are broken. Line of cutting for barb extended to part of stem. Cut due to whittling under barb clearly indicates use of a knife. Surfaces have been smoothed. Forepart terminates in a stocky point. Stem is roughly rounded below barb and flattened lenticular above it. There are minor traces of glossiness due to use. Length is 105 mm. Period IIA

No. 2: Complete, except for broken tips of tang and barb. Single barb, whittling in fashioning barb is not prominent. Smoothing is confined to forepart which has a round section, smooth lateral tapering terminating in a sharp tip. Stem below barb is roughly oval in section. A geometrical pattern, showing a "V" shaped formation flanked by two equidistant lines, all transversely, engraved on the shaft from the level of barb towards tang. It is stated here that in wielding the weapon it has no functional utility, hence intended for specific identification. Length is 100 mm. Unstratified

No. 3: Incomplete, forepart including barb is broken. Whittling on stem for working barb is prominent on lateral edges, only base of barb is intact. Stem below barb is flattened oval in section, dressed well, but not much smoothing is in evidence. Tang has been thinned down, rounded and smoothed, terminating in a stocky point, surfaces being glossy in this part. Five transverse lines are incised on one face of the stem, among them four are evenly spaced and the other face is spongy. Length is 111 mm. Period IIA

No. 4: Incomplete, tips of forepart, barb, and tang are broken. Stem which has single prominent barb is roughly fabricated from a splinter and rectangular transverse in section. Line of cutting for the barb is prominent at the junction of barb and stem. Stem below barb is squarish in section and above rectangular with poor workmanship. Length is 114 mm. Period IIA

No. 5: Incomplete, forepart and tang broken. Single barb with a sharp tip protruding prominently, triangular in outline. Stem above and below the barb has been dressed well and rounded. One face is spongy. Minor traces of glossiness due to use. Length is 94 mm. Period IIA

No. 6: Incomplete, tang, barb and major portion of operative part are broken. Arrowhead shaped. The cut on the left lateral margin above the barb may have been intentional and functional. Operative part is roughly parallelogrammatic in section and stem below it roughly rounded. Length is 55 mm. Period I

No. 7: Complete except for broken forepart and tips of barbs. Properly smoothed and well finished. Extant forepart shows two barbs, one above the other on the same side, whittling for fashioning barbs is prominent and shows marked taper from the tip of each barb towards forepart. Stem from barbs towards forepart is hexagonal in section and below it nearly rounded and thinned down terminating in a large pointed tang. Surfaces are glossy. Length is 118 mm. Period IIB

No. 8: Incomplete, the stem below second barb and the tang are broken. Extant portion shows two widely spaced incipient barbs one above the other on the same side, tip of the one towards operative point is broken. Forepart is rounded and tapers off smoothly to terminate in a sharp point with an oblique cut. Stem between the barbs is rounded rectangular in section. There is a motif close to the tip incised almost opposite to the barbed side, but some 20 mm above the barb. It depicts three evenly spaced transverse lines of equal size and two incised lines making capital X (double the size of transverse lines) below. Length is 85 mm. Period IIA

No. 9: Complete, except for broken tips of both of the barbs and the tang. Two widely spaced incipient barbs one above the other on the same side. The first barb is rather incipient and not effected properly. The whittling for the second is deep and prominent. Stem between the barbs and below them is roughly rounded. Forepart properly smoothed, rounded and tapers off smoothly towards operative point. Surfaces in this part are glossy. Length is 105 mm. Period III

No. 10: Complete except forepart and tip of one barb. It is a distinctive type. Forepart bears two widely spaced barbs fashioned in opposite directions one above the other. Effective bevelling towards lateral margin of each barb, the opposite margin being nearly flat, thus making the edges of the barbs sharp and section is nearly pentagonal. Stem is long, flattened oval, and unilaterally tapers off sharply to form a pointed tang from mid-point between barb and terminating point of tang. Stem below barbs up to the tip of tang is rounded in section. Surfaces have been smoothed except for spongy portions and show minor traces of glossiness. Length is 142 mm. Period IIB

No. 11: Complete, but for broken tips of tang and forepart. It is a distinctive type. Forepart is flattened and triangular in outline. It bears two widely spaced sharply projecting barbs, triangular in outline, worked transversely one above the other and spaced 39 mm apart. The cuts made for the barbs indicate use of knife obliquely. Stem between barbs is flattened and rectangular in section and below barbs oval. Surfaces have been properly smoothed and bear minor traces of glossiness. Length is 149 mm. Period I

No. 11a: Incomplete, forepart is broken, a variant of the above. It bears two widely spaced barbs, only one of which intact, triangular in outline, worked transversely one above the other and spaced 26 mm apart. This part of the stem is properly smoothed and bevelled from flat lateral margin towards the margin of intact barb, thus making its section triangular. Stem below barb is long and slightly thinned down towards tang terminating in an oblique cut at the end. It is rounded squarish in section. Fabrication is rough. Length is 136 mm. Period IIA

No. 11b: Incomplete, forepart broken, its extant portion shows traces of a barb near tip and below it another widely spaced barb with broken tip in opposite direction. Sawing action is evident in the surviving barb. The stem below the second barb tapers to the tip of the tang which has been rounded and must have been a sharp point which is slightly broken. Stem above the second barb is triangular with rounded sides in section. The surfaces have been smoothened and the dorsal face is partly spongy. Surfaces bear minor traces of glossiness. There are some irregular incised lines on the middle part of the stem below the second barb. Length is 109 mm. Period IIB

No. 12: Incomplete, only barbed portion is intact. Adequately smoothed and ground, grinding striae run obliquely and markedly on both faces. Two barbs widely spaced, triangular in outline terminating in a sharp tip. The first one is slightly angular in profile. The tip of the forepart is rounded. Operative part has a midrib with lateral bevelling, thus parallelogrammatic in section. Stem between the barbs is pentagonal in

section and only one edge is sharp. Surfaces bear minor traces of glossiness. Length is 105 mm. Period IIA

No. 12a: Incomplete, only barbed portion is intact. This is a solitary specimen in stone. It has a pointed tip and two lateral barbs, both triangular in outline, barbs are closely spaced one above the other in opposite directions and tip of the one towards tang is broken. Operative part has a midrib slightly off the centre with lateral bevelling, thus parallelogrammatic in section. Grinding striae are evident. Length is 64 mm. Period III

No. 13: Incomplete, broken below the barb, apparently from the mid-point downwards. Its large point, terminating in rounded tip, has a midrib with lateral bevelling, thus parallelogrammatic in section. It is one of the few specimens where the barb is at a distance of about 90 mm apart from the tip of the forepart. Surfaces are smoothed and ground, but no traces of glossiness. Slight striation marks running obliquely are evident. There is a chevron like motif almost at mid-point between the tip and base of the barb. Length is 95 mm. Period I

No. 14: Incomplete, forepart, two barbs and stem are broken. Operative part with broken point, seemingly large, has a midrib with lateral bevelling, thus parallelogrammatic in section. Barbs executed laterally in opposite directions almost at the same level. Stem is relatively thin and roughly fabricated. There are four evenly spaced horizontal lines arranged perpendicularly on one face and a single oblique one on the other (not shown in drawing), incised above the barb. Length is 72 mm. Period IIB

No. 15: Incomplete, tips of both the barbs and stem are broken. Operative part is intact and slightly curved in outline. Point, terminating in a rounded tip, has a midrib with lateral bevelling, thus parallelogrammatic in section. Traces of two widely spaced barbs worked transversely one above the other. Stem between the barbs has a pentagonal section due to flattened face opposite that of the barb towards the tang. Surfaces have been adequately smoothed and finished. Grinding striae run obliquely. Surfaces are glossy. Length is 94 mm. Period III

No. 16: Complete except broken stem below barbs. This is the thinnest specimen from Burzahom, nicely smoothed and ground. Barbs and point are sharply tipped. Its stem tapers off towards large point with two lateral barbs widely spaced one above the other in opposite directions, entire section being irregular, approaching circular to flattened oval. It seems that knife has been used extensively in working barbs as traces of sawing are minimal. Surfaces are partially glossy due to use. Length is 85 mm. Period IIA

No. 17: Incomplete, lower part of stem and tip of forepart are broken. It has a large point and three barbs, two on one side and one on the other. Barbs close to tip are shorter, executed laterally in opposite direction and closely spaced; the third one comparatively larger and widely spaced protrudes sharply. All barbs have been worked with knife; no sawing action is in evidence. Whittling is prominent. In section entire shaft from broken tip to the third barb below is irregularly oval, and further below squarish. Surfaces are not glossy. Length is 85 mm. (from a dwelling pit). Period I

No. 18: Incomplete, only operative part intact that too with broken tips of two of the three barbs and forepart, slightly curved in outline. It has a large point with a slight midrib on both faces. In section this portion is parallelogrammatic, and below it triangular, as one face is nearly flat. Widely spaced, the first two barbs from the point are on one side, the remaining one below on the opposite side. Whittling and sawing action are in evidence. Smoothing and grinding are good. Length is 104 mm. Period IIA

No. 19: Complete, except for broken forepart. Intact parts show two closely spaced long and prominently protruding barbs at an acute angle with flat tips one above the other on the same side, section of extant stem up to this portion is rectangular, below that up to the tip of pointed tang oval and slightly curved in outline. Whittling in fashioning barbs is prominent. One face is smoothed, the other one is spongy. Length is 128 mm. Period IIA

No. 20: Incomplete, only upper portion of stem from mid-point is intact with a broken barb on one side and two complete on the other. Stem below the third barb intact for 30 mm. It is a distinctive type. All three barbs are evenly spaced. Only the projecting point of the first is intact. Second one is triangular in outline whereas the third is prominently angular in profile with a sharp tip. Barbs adequately whittled, smoothed and ground. Forepart is thin, triangular in form with a pointed tip. Surfaces bear minor traces of glossiness. Length is 90 mm. Period IIA

No. 21: Incomplete. Only the barbed portion of stem is intact. Three barbs closely spaced are evident on one of lateral sides. The first barb is intact while second barb is partly broken and the tip of the third is broken. More of sawing action is evident for forming the barbs where stem is rounded in section. The ventral face is partially smooth and the dorsal face is slightly rough and spongy. Length is 71 mm. Period I

No. 21a: Incomplete and a variant of the above. Surviving portion shows a broken stem with three barbs widely spaced one above another on one side. Operative point and its nearest barb are broken; tips of remaining barbs are also broken. In section stem from

top up to the second barb is rectangular and squarish below it. Length is 73 mm. Period IIB

No. 22: Complete except for broken tips of tang and barbs. Forepart is triangular in form with thin edges and rounded tip. The tool has four barbs. The last barb towards tang is nearly incipient. Fabrication is poor, irregular notching and knife cuts are evident. Surfaces excepting forepart have been roughly done. Stem below incipient barb is roughly rounded. Length is 122 mm. Period IIA

No. 23: Incomplete, only barbed part of stem intact. It shows two barbs, each with an angular profile, widely spaced one above the other on the same side. Tips of evenly and nicely notched barbs are broken. Fabrication is good. Extant stem between the barbs and below them is squarish in section and rounded triangular from where barbs emerge. Length is 51 mm. Period IIA

No. 24: Incomplete, operative point and the lowest part towards tang broken. Extant portion of stem has three widely spaced barbs one above another on one side only. Stem is long, uniformly thick and roughly rounded; irregular from where barbs emerge. Surfaces are rough, poorly smoothed. Material is not so tractable. Length is 144 mm. Period IIA

No. 25: Complete, except for the lower portion towards tang. Four barbs widely spaced. The first two barbs being on either edge are short, rather incipient with sharp tips and triangular in outline. Remaining two placed one above the other on the same side have incisive tips sharply projecting at an acute angle. Forepart up to the second barb is slightly bevelled towards the edges on both the faces, section being parallelogrammatic, stem below that is roughly rounded. Length is 148 mm. Unstratified

No. 26: Incomplete, forepart and tang broken. Surviving portion shows four barbs, two on either side; one barb completely broken and the remaining ones with broken tips. These barbs are arranged in two tiers, each tier, consisting of two barbs placed in opposite directions, springs from the same level of stem. Stem below barbs is roughly rounded. Tang is curved in profile and rounded in section. Forepart is slightly bevelled towards sides on both the faces, section being trapezoidal. Length is 115 mm. Period IIB

No. 27: Incomplete, forepart and stem below barbs are broken. Intact portion shows five barbs, one in the centre of the stem and remaining four arranged in two pairs, placed above and below the lone barb in the centre. Each pair is showing barbs in opposite directions, springs from the same level of stem. All barbs are alike in pattern. Forepart has been bevelled towards sides, thus forming a mid-rib on either face; section being

parallelogrammatic, remaining part of stem is roughly rounded. Notching and sawing action are in evidence. Surfaces have been smoothed. Minor traces of glossiness due to use. There is a deep 8 mm long line incised horizontally on the forepart running from mid-rib towards margin which may be an accidental knife cut or even intentional. Length is 74 mm. Period IIA

No. 28: Incomplete and a distinctive type. Only barbed portion is intact showing unilaterally arranged broken barb topped by a serrated stem with six blunt teeth, almost equal sized and somewhat triangular in outline and part of stem leading towards broken point. Stem has been neatly smoothed, one face being spongy, in section conically oval to rounded. Length is 62 mm. Unstratified

No. 28a: Incomplete and a distinctive type, only operative part intact. It shows a stocky point triangular in outline with a rounded tip, and a unilaterally serrated stem with seven incipient teeth below, and a broken barb further below towards tang. Stem is conically oval in section, surfaces are smooth. There is an incised oblique line opposite serrated side. Interestingly, it bears no traces of glossiness due to use. Length is 44 mm. Period III

No. 29: Incomplete and a distinctive type. Only barbed portion is intact. There are two widely spaced barbs with broken tips one above the other on one side. The opposite side is serrated, bearing eleven uneven teeth, some of which are broken, and base of a presumably broken barb. Surfaces are not so smooth. Stem has a midrib on ventral face, which is bevelled towards either side; the dorsal face is slightly convex, section irregular. No traces of glossiness due to use. Length is 56 mm. Period III

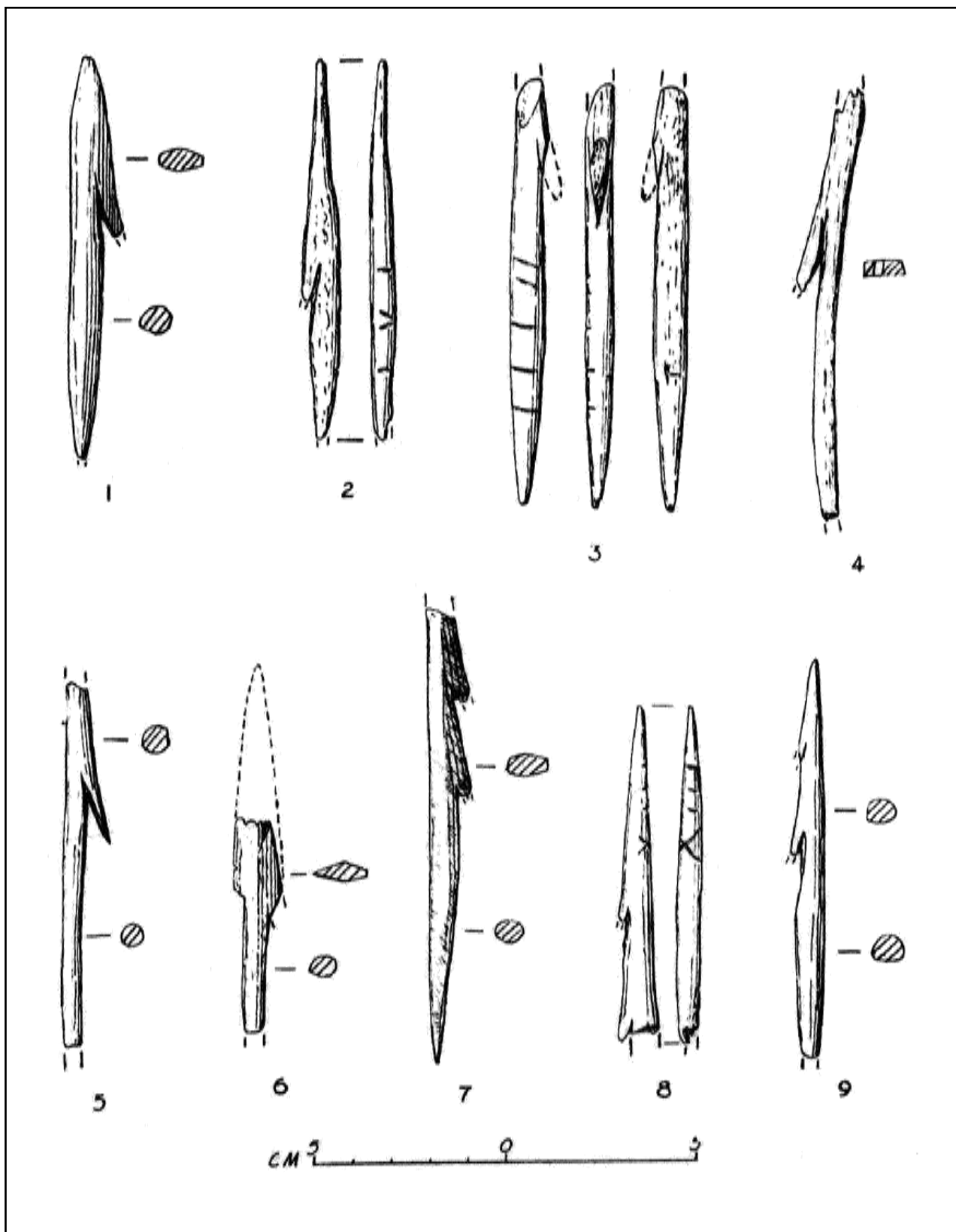


Fig.4.3.25 Barbed points (Harpoons)

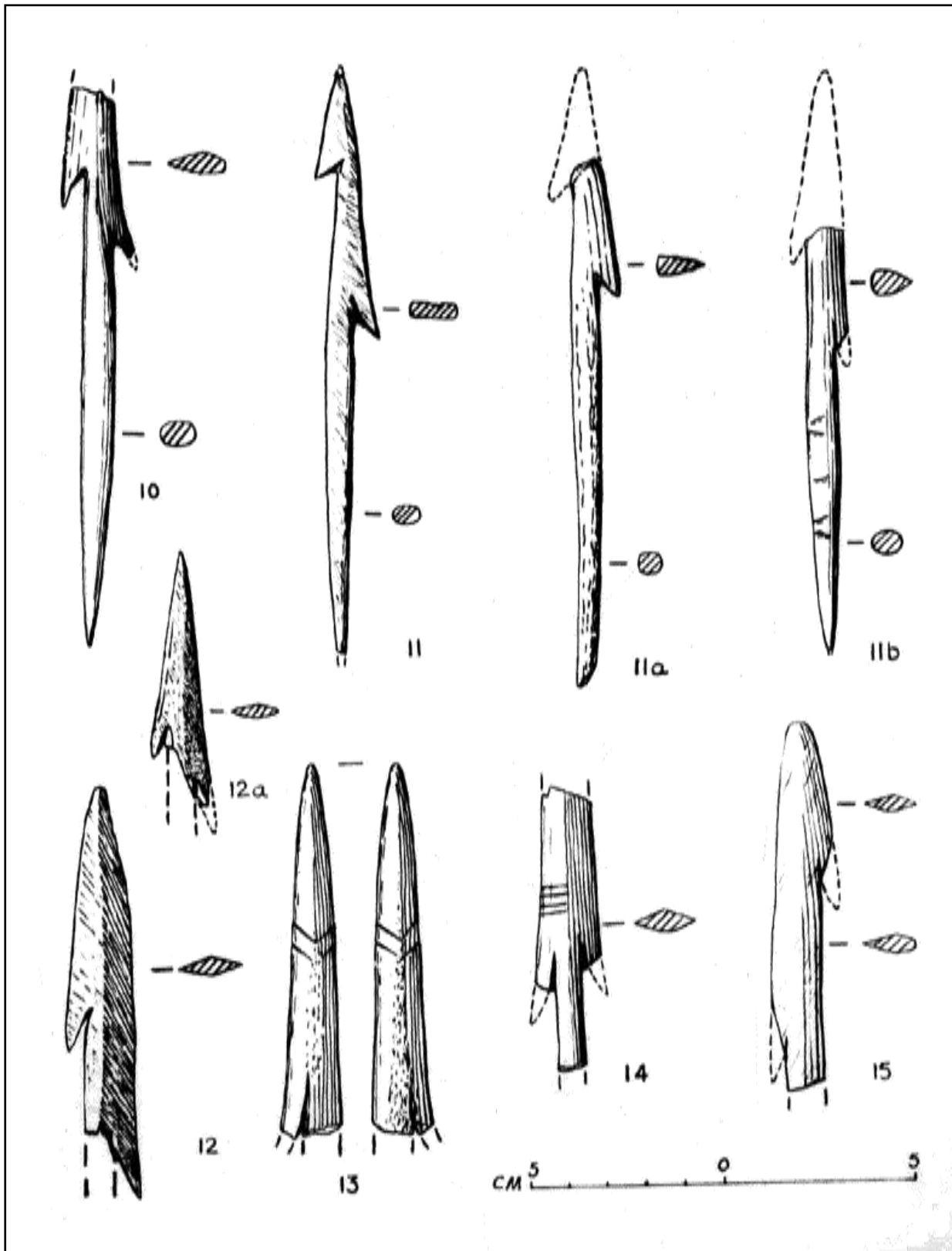


Fig.4.3.26 Single edged points (Spear-heads)

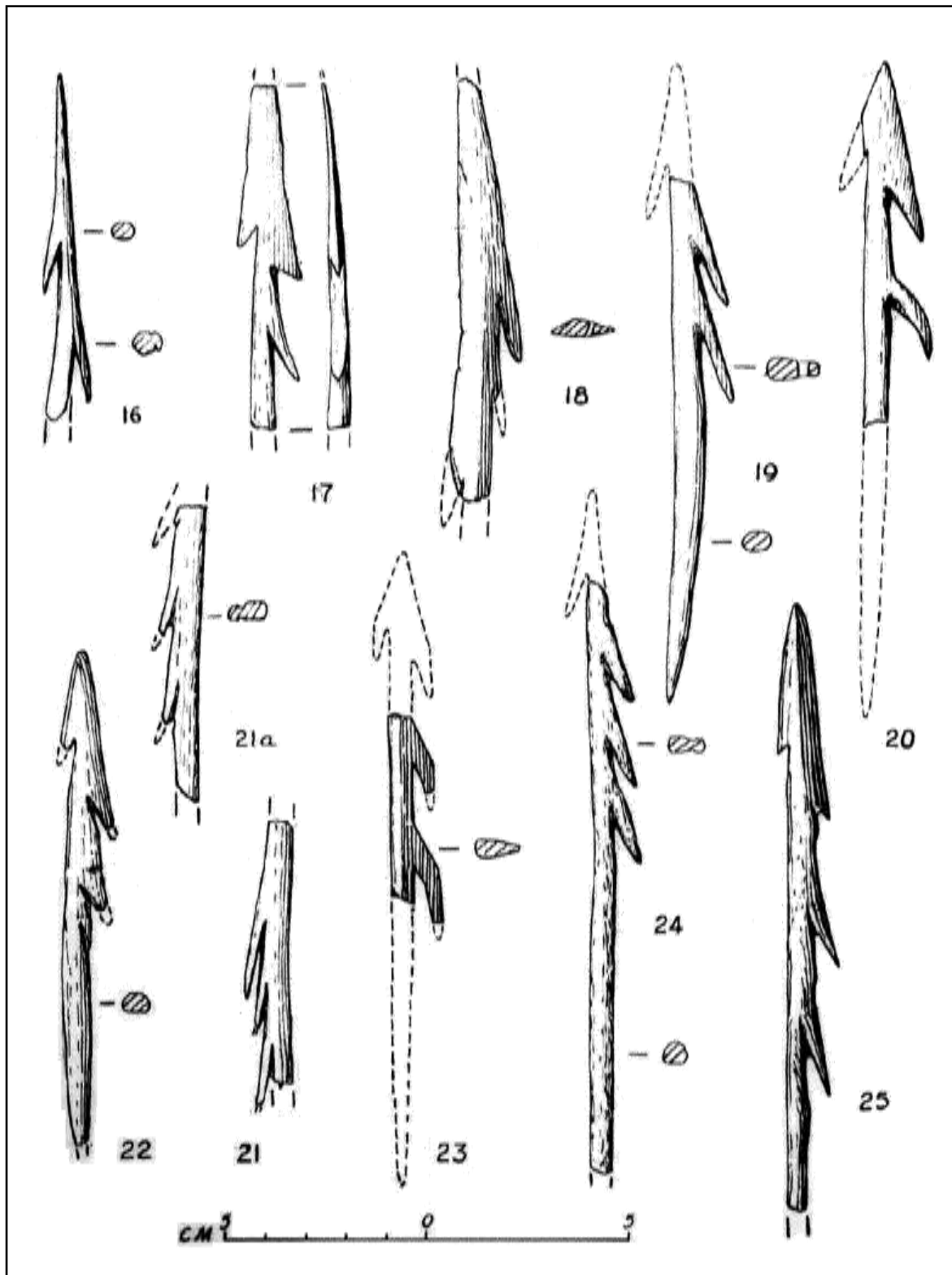


Fig.4.3.27 Single edged points (Spear-heads)

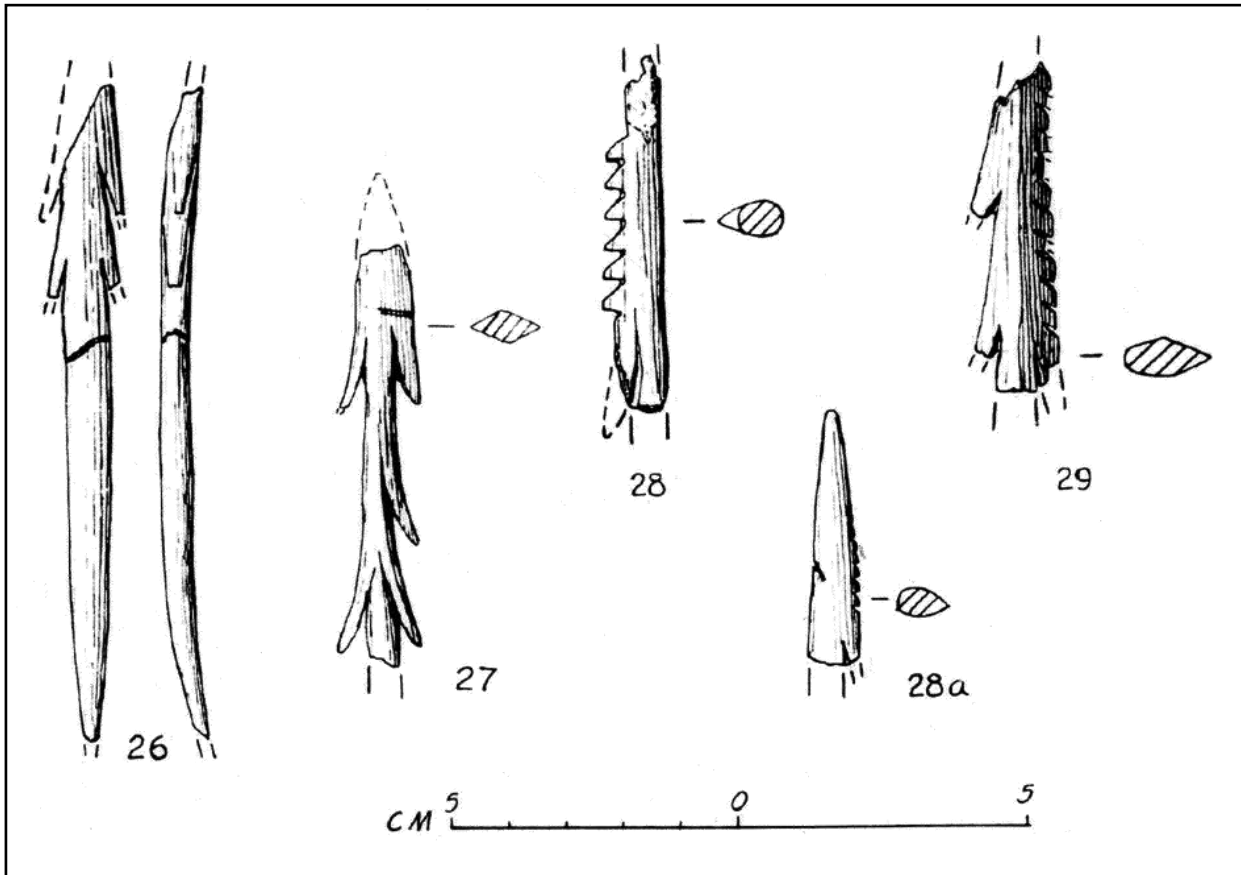


Fig.4.3.28 Single edged points (Spear-heads)

4.4 METAL OBJECTS

The excavations revealed both copper and iron objects, amounting to 75 from various periods as well as un-stratified level or surface. The invariable uses of copper, in the form of tools and other items were found mostly from the Neolithic level indicated the familiarity with the technique of metallurgy. Altogether, 63 copper objects have been recovered from various levels of excavations. Among which, an interesting set of 7 arrowheads, 2 harpoons (thrusting type) and 2 spearheads in copper are remarkable. Excluding these copper implements, a number of copper items have also come across during excavations.

Besides, 12 iron objects were found either from un-stratified level/surface or from the upper level of the Historical Period. Among the total collection of 75 metal (both copper and iron) items, 48 specimens' have been selected for illustration (Fig. 4.4.1 nos. 1 to 11, Fig. 4.4.2 nos. 12 to 26 and Fig. 4.4.3 nos. 27 to 48).

A.COPPER OBJECTS

The stratigraphical sequence of copper tools shows that out of 7 arrowheads illustrated nos. 1, 2 are found just above the Earliest Level of Period II A, nos. 5, 6 are from Early Levels of Period II A; no. 7 is from the Middle Level of Period II A, while no. 8 is from Period IV and no. 9 is from an Un-stratified Level (section scraping). Regarding the 2 harpoons nos. 3 and 4 are found just above the Earliest Level of Period II A as nos. 1 and 2 are, moreover, out of 2 spearheads no. 10 is found from Period III and no. 11 from Period IV.

The arrowheads specified are distinctively shaped, barbed and tanged. The forepart is triangular, the tips being mostly rounded off and not terminating as sharp points. However, there is a central ridge in the forepart mostly going along the vertical axis which is clearly perceptible in nos. 1 and 9, faintly perceptible in nos. 2, 5, 7, 8 and non-existent in 6. The portions on either side of the central ridge have been flattened in most of the cases, but in 7 there is a minor corrugated effect to the right of the central ridge on either face, and the corresponding edges are thinner. The barbs are prominently protruding acutely with sharp tips except in no. 5 where these are short and the tips is rather blunt, since it has been rounded off. In no. 8 however, the barbs have an angular profile and the forepart has been flattened pretty thin. In no. 7 there are two additional short barbs at right-angles to the shaft, but the sharp tips are broken. Even the existing part of the shaft in no. 8 is very thin, which explains the break. The shafts in the other arrow-heads are sturdy, mostly round in section, except in no. 7

which is rectangular. There is no special workmanship for the tang and the shafts terminate as stocky points. Taking into consideration the complete specimens, the smallest in length is no. 5 being 96 mm and the longest is no. 6 being 140 mm. The maximum width varies from 15 mm (5) to 28 mm (1) and the maximum thickness from 1.5 mm (8) to 4 mm (9).

Out of 2 harpoons in the collection (nos. 3 and 4), no. 3 has a straight thin shaft; the tip is sharp and pointed, while the tang terminates in a blunt point, the length being 85 mm. The cross-section is rectangular. There is single barb with an angular profile, the tip being sharp. The barb is nearly at the centre of the shaft. The other harpoon no. 4 has two barbs at different planes; the length being 101 mm. The forepart is triangular in outline. There is no evidence of a central ridge in the operative part. The barbs are prominently protruding and have sharp tips. The second barb has an angular profile. The shaft is rounded rectangular in section, but round in section towards the lowest part. There is no special workmanship for the tang.

There are two spear-heads (nos. 10 and 11). Both are incomplete but distinctively shaped. In no. 10 the central ridge is faintly perceptible while in no. 11 it is non-existent. In no. 10 however, there is a minor horizontal level along the vertical axis in the operative part from the central ridge to the right edge on either face. The lateral edges are sharp; the tang is sturdy with a rectangular section, the base being flat. No. 11 is differently shaped, the forepart and tang are broken, and the operative part has been flattened, the lateral edges being sharp.

Apart from arrow-heads, harpoons, spear-heads as already detailed out above, Burzahom has yielded a number of assorted objects in copper which are also illustrated. These comprise a sturdy punch (no.12), a flattened fragmentary wire (no.13), bangles (nos.14 to 16), rings (nos.17 to 20), clamp like objects (nos. 21 to 23), two knife blades (nos.24, 25), a bar-Celt (no.26), borers or borer like objects (nos.27 to 33), antimony rods (nos.34 to 39), pins (nos.40 to 43), needle (no.44), nails (nos.45 to 47) and an indeterminate object (no.48).

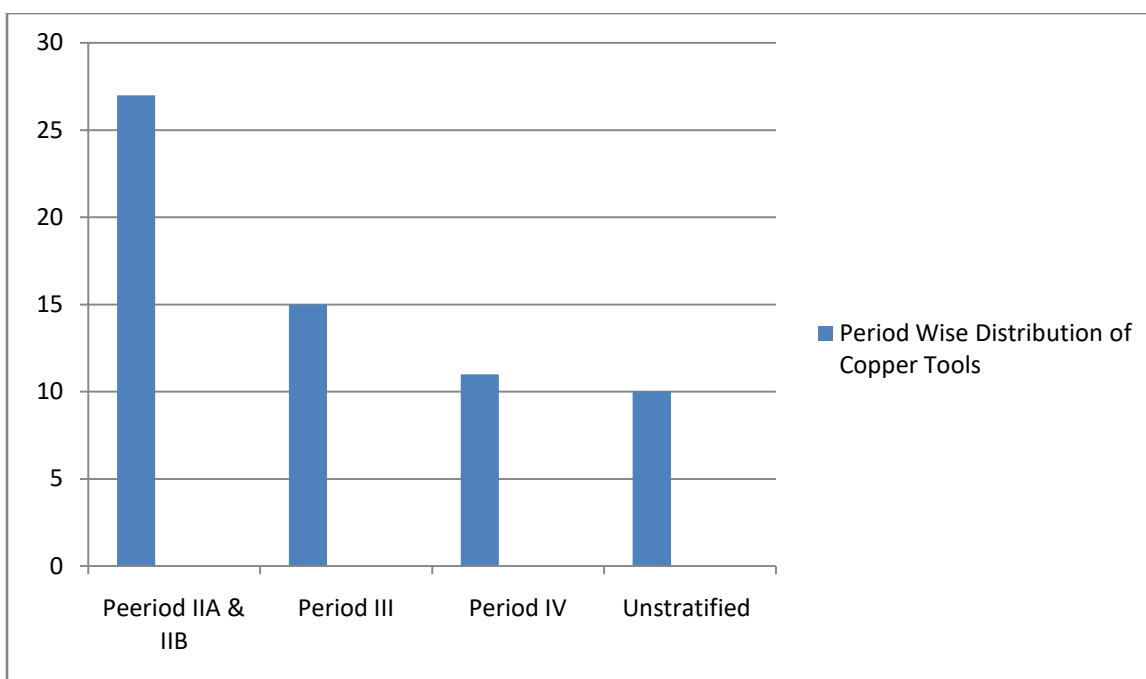
Amongst the objects specified above, nos. 13, 18, 29, 30, 41 and 43 are from the Early Levels of Period IIA and nos. 14, 22, 33, 36, 37 are from the Early Levels of Period II B. These consist of a fragmentary wire (no.13), a broken bangle (no.14), a ring (no.18), clamp like object (no.22), broken borers (nos.29, 30, 33), two antimony rods (nos.36 and 37), two pins (nos.41 and 43). Besides, there are five fragmentary wires, two broken rings, seven pins or pin like objects, and one broken bangle in brass, fifteen in number secured from various levels, which have not been included in the illustrated types.

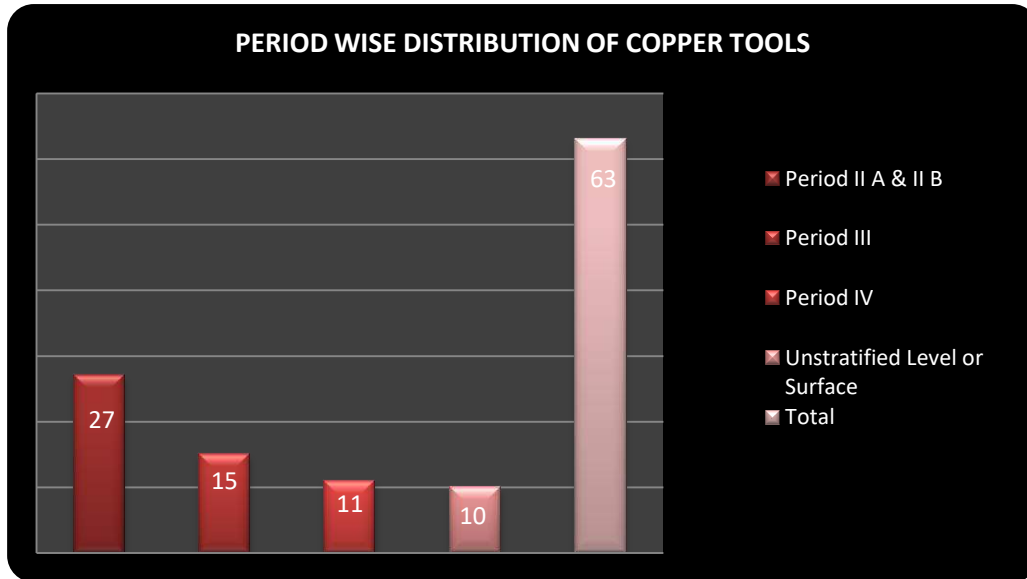
Amongst there are 9 specimens from the Early, Middle levels of period II A and Early Levels of Period II B mostly found in a broken state. These consist of three fragmentary wires of flattened section, four pins of round section and two rings of flattened wires.

In the illustrated specimens, nos. 16, 20, 21, 26, 27, 32, 35, 38, 40, 44, 47 and 48 are from Period III. Specimen nos. 12, 15, 17, 19, 25, 28, 31 and 42 are from Period IV, while nos. 23, 24, 34, 39, 45 and 46 are from Unstratified Levels. Amongst the undemonstrated specimens, there are two objects from Period III, one from Period IV and three from Unstratified Levels. These comprise copper wire pieces, pins, a ring and a brass bangle.

The period-wise distribution of metal objects in copper consisting of 63 items is as follows:-

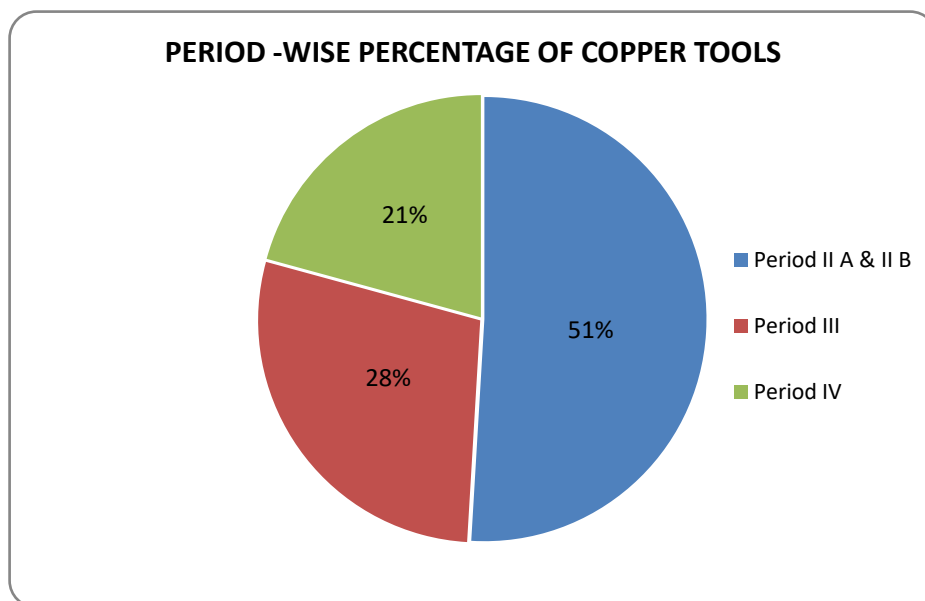
Period IIA and IIB – 27, Period III – 15, Period IV – 11 and Unstratified – 10.





Excepting the specimens from Unstratified Levels, the period-wise percentage works out as follows:-

Period IIA & IIB – 51%, Period III – 28%, Period IV – 21%.



Regarding the other objects, the punch (illustration no.12) is pretty sturdy and stocky, being 197 mm long. The shaft is of rounded section, has finished surfaces and

the workmanship is pretty good. It could have been used as a wedge also. The thick head-end 28 mm in diameter clearly indicates that it had been in constant use. The flattened wire (no. 13) is fragmentary, and quite a few other pieces have also been found. The use is not clearly indicated, but it is apparent that it may have been used for making rings and bangles with overlapped ends. The three bangles (nos. 14 to 16) are of flattened and round section. The illustration no. 15 is indicative of the fact that flattened wires have been used for making bangles also. The rings (nos. 17 to 20) are of round or oval section. Two of these (17 and 20) are with detached ends, no. 18 has overlapped ends, while the sample in illustration no. 19 the ends have been coiled. In this case each end has been thinned and then coiled thus a spiral like appearance emerged. Further, the illustration nos. 21, 22 and 23 are clamp like objects of round and squarish section with sharp ends. In the two knife blades (nos. 24, 25) the shaft are broken, and the operative parts are thin. In no. 25 both the lateral sides are sharp, while in no. 24 one side is blunt. The bar Celt has been fashioned, the surfaces are smooth; the working edge is convex with splayed ends. The butt end is flat but round near the corners. The cross section is rectangular. Borers and reamers (nos. 27 to 33) are of rectangular, round or rhomboid sections, the piercing points being sharp and mostly of round sections. The workmanship in making the shafts is not so good except in no. 31.

The antimony rods (nos. 34 to 39) are mostly of round or squarish section. The working ends are generally of round sections. The shafts show better workmanship compared to the borers. The pins (nos. 40 to 43) are of rhomboid, round, rectangular and oval sections. The sizes vary from 38 mm to 57 mm. The workmanship in relation to finishing of surfaces is just marginal. The shaft is dented in the lower part in no. 43, perhaps due to use. The needle (no. 44) resembles the modern one except that the shaft is thin and flattened, mainly rectangular in section and rounded in the lower part. The major part of the eye is broken. The shaft is dented due to use. The three nails (illustration nos. 45 to 47) are of round sections with different head-ends in each case. In no. 45 there is no workmanship for the head-end except that it is slightly thicker than the shaft below it, The bend in the lower part is due to use. The illustration no. 46 has an expanded and folded head forming an eye. The shaft is of round section. It could have been used as a needle also. No. 47 has an expanded and folded head forming a hook. The shaft is slightly dented below the head due to use. No. 48 is an indeterminate object.

The above referred 48 metal objects are illustrated below:

No. 1: Complete. Arrow-head, barbed and tanged, 135 mm long. The barbs are prominent with sharp tips; one of the tips is bent either during fabrication or during

use. The operative part has a low but well defined ridge in the centre along the vertical axis going to the top which has been rounded off. The shaft is 93 mm long, dented in the central portion, round in section except near the lower end where it is rectangular and comparatively thinner. Period IIA

No. 2: Complete except for a break in one of the barbs. Arrow-head, barbed and tanged, 110 mm long with the projected tip of the right barb broken. The existing tip of the left barb is pretty sharp but slightly dented. The operative part has a low but easily perceptible ridge in the centre. The central ridge is not well defined as in 1 above. The shaft is dented below the mid-point, rounded rectangular in section up to the mid-point and round in section below that. Period IIA

No. 3: Complete. Harpoon, 85 mm long with a single barb just below the centre. The barb has an angular profile and the tip has been rounded off and as such it is not sharp. The shaft above and below the barb is rectangular in section, pretty thin ranging from 1 to 1.5 mm in thickness. The top is sharp point while the base is flat. Period IIA

No. 4: Complete. Harpoon, 101 mm long with two barbs at different planes. The forepart has been flattened bearing no evidence of a central ridge. The top has been rounded off. Both the barbs are prominent with sharp tips. The barb on the left has an angular profile, while the other barb is protruding acutely, the tips being sharp in both the case. The shaft just below the barbs is rectangular in section, roundedly rectangular in the central portion and round in section in the lowest part, terminating in a semi stocky point. Period IIA

No. 5: Complete, except for a break in one of the barbs and the tip at the top. Arrow-head barbed and tanged with the break indicated above, 96 mm long. In its full form it may have been about 99 mm long (anticipated). The central ridge in the operative part is slightly perceptible. Only the base of one of the barbs is intact. The intact barb is short and the tip has slightly been rounded off making it less sharp than is normally the case in other specimens. This is the smallest arrow-head in this series. The shaft just below the base of the barbs has been flattened, approaches the flattened oval in section for about 13 mm and is round in section below that, terminating in a point. Period IIA

No. 6: Complete, except for a break in one of the barbs. Arrow-head, barbed and tanged, 140 mm long. This is the longest arrow-head in copper. The tip of the intact barb is not as sharp as in some of the other arrow-heads. The central ridge which is a distinctive feature is missing in this specimen.. The shaft 103 mm long is nearly straight except for a minor dent above the mid-point approaches the round in section and terminates in a stocky point. Period IIA

No. 7: Broken. Distinctive type. Arrow-head barbed and tanged (existing length 85 mm). Both the barbs have broken just near the base. The lower part of the shaft is also broken. The low central ridge is faintly perceptible in the lower 2/3rd portion of the operative part and the portion above it has been flattened, terminating in a point. This is an additional feature in this specimen only. The sharp tips of these barbs have broken. Period IIA

No. 8: Incomplete. The shaft is broken and only the operative part is intact. The barbs are distinctively shaped and have an angular profile with sharp tips. The specimen is the thinnest of the arrow-heads found; the maximum thickness being 1.5 mm. The triangular outline is also irregular. The low ridge in the centre is slightly perceptible. The top has been rounded off. Period II

No. 9: Complete. Arrow-head, barbed and tanged, 121 mm long. The operative part is 56 mm long up to the tip of the longer barb with a central ridge but not so well defined. The right barb projects 2 mm longer than the other barb. The maximum width is 27 mm. The shaft is round in section. There are no special features about the tang and the tool is obtained during section scraping. Unstratified

No. 10: Complete, except for the forepart which is broken. Spear-head, tanged. The lateral edges taper towards the top as also are thin and sharp. The tang is sturdy, rectangular in section and terminating in a flattened stocky point. Period III

No. 11: Incomplete spear head. The tip at the top and the tang are broken. Distinctive type. The fabrication is slightly cruder compared to the above. There is no evidence of a central ridge. The lateral edges are partly damaged. Period IV

No. 12: Complete. Punch 197 mm long with a thick head folded with hammering. The head-end is 28 mm in diameter. The shaft is round in section, 17 mm in diameter at the

upper end, diminishing to 15 mm at the mid-point from where there is a sharper taper and terminating in a sturdy blunt point. The diameter just above the terminal point is about 3 mm. It could have been used profitably as a wedge also. Period IV

No. 13: Incomplete. Fragmentary wire piece with a thin flattened section. Period IIA

No. 14: Broken. Fragmentary bangle of round section. Period IIB

No. 15: Broken. Fragmentary bangle with a thin flattened section. Period IV

No. 16: Complete. Bangle of round section. Period III

No. 17: Complete. Ring of an oval section with detached ends. Period IV

No. 18: Complete. Ring (coil like) of a thin flattened section with overlapped ends. Diameter is 21 mm. Period IIA

No. 19: Complete. Ring of round section with overlapped and inter-coiled ends. Both the ends have been thinned. The workmanship is pretty good. The material seems to be brass. Period IV

No. 20: Complete. Ring of round section with the ends touching each other. Period III

No. 21: Complete. Clamp like objects of round section. Both the ends have sharp points. Period III

No. 22: Complete with a minor break at one end. Clamp like object of round section. Both the ends have sharp points. Period IIB

No. 23: Complete. Clamp like object of squarish section with sharp pointed ends. Unsatisfied

No. 24: Broken. Part of a knife blade of a thin flattened section with breaks at the upper and lower ends. Only one lateral edge is sharp, the other being blunt. Unstratified

No. 25: Broken. Knife blade of a thin flattened section. It has a curved outline, markedly near the upper end. Both the lateral edges being sharp are operative. Period IV

No. 26: Complete. Bar-celt 103 mm long with a splayed cutting edge. The butt is flat but rounded near the corners. The surfaces are smooth indicating good workmanship. The cutting edge is slightly convex, not very sharp and secured by asymmetrical bevelling. The maximum thickness is about 7 mm. Period III

No. 27: Complete. Borer 117 mm long. The edges taper sharply in the lower part to form an incisively sharp point. The upper end is flat; the section being rectangular for the major of the shaft, while in the lower 1/4th part it is round. Maximum thickness is 2 mm. Period III

No. 28: Complete, except for the lower sharp tip which is broken. Borer 83 mm long. The edges taper below the mid-point to form the operative part. The top end is flat; section is almost the rounded rectangular just below it for about 10 mm. The rest of the shaft is round in section. Period IV

No. 29: The upper part is broken. There is also a lateral break in the lower part and the sharp tip is broken. Reamer (existing length 48 mm). The section is rhomboid in the upper 2/3rd part and rounded in the rest. The edges taper sharply in the lower 1/4th part to form the incisive part. Period IIA

No. 30: The upper part is broken. Reamer (existing length 55 mm) of round section in the lower part, flattened oval above it and approaching the round in the upper part. The lower part has been nicely finished. Period IIA

No. 31: Complete. Borer 64 mm long of round section. The operation part is not as incisively sharp as in the above. Period IV

No. 32: The upper part is broken. Reamer like object (existing length 46 mm). The workmanship is rather crude. The section approaches the rhomboid in the lower part and hexagonal above it, and roughly rounded below the broken part. Found at the floor level. Period III

No. 33: The upper as also the lowest part is broken. Borer (extant length 44 mm). The shaft is slightly dented, perhaps due to use. The section is rounded rectangular except in the lower part where it is nearly elliptical. The sharp point is broken. Period IIB

No. 34: Incomplete. One of the ends is broken. Probably an antimony rod with a bend above the mid-point. The bend above the mid-point may be either due to use or the object may have been fabricated as such. Period III

No. 35: Complete. Antimony rod 68 mm long. The section in the central 1/3rd part is round and rounded rectangular in the upper and lower parts. Period III

No. 36: Complete except for a minor break near the top. Antimony rod with a bend below the mid-point. The bend seems to be due to use. The major part of the shaft is squarish in section but approaches the round near the upper point. Period IIB

No. 37: Complete except for the lower end which is broken. Antimony rod (existing length 63 mm) of round section. In its full form it may have been about 66 mm in length. Period IIB

No. 38: Complete except for a break at both the ends. Antimony rod (existing length 84 mm). The upper and the lower 1/4th parts are of round section, while the rest of the shaft is of squarish section. In its full form the object may have been about 90 mm long. Period III

No. 39: Complete. Antimony rod with a curved outline of round section and slightly thicker ends than the main shaft. Unstratified

No. 40: Complete. Pin 49 mm long. The upper 1/4th part is in section, while the rest of the shaft is rhomboid in section except near the lower tip where it has slightly been flattened. Period III

No. 41: Complete. Pin 38 mm long. The section is round in the major part of the shaft and rounded rectangular for 10 mm above the lower end. Period IIA

No. 42: Complete. Pin 51 mm long. The major part of the shaft is rounded rectangular in section, but rounded near the lower and upper terminal points. Period IV

No. 43: Complete. Pin 51 mm long with a bend in the lower part which may be due to use. The terminal points are sharp. The section is rectangular for the major part of the shaft.. Period IIA

No. 44: Complete except for a break in the head-end. Needle with the major part of the eye broken. The shaft below the eye has been flattened up to the mid-point, and terminating in a sharp point. The needle is dented due to use because of a thin and weak shaft. Period III

No. 45: Complete. Nail 59 mm long with a bend in the lower 1/3rd part due to use. The major part of the shaft is rounded pentagonal in section, rounded just near the head end near the piercing point. Unstratified

No. 46: Complete. Nail, 82 mm long with an expanded and folded head forming an eye. The shaft is rounded rectangular in the upper 1/4th part, but round in section below that, terminating in a point. It could have been used as a needle also. Unstratified

No. 47: Complete. Nail of round section, 75 mm long with an expanded and folded head forming a hook. There is a minor bend in the upper part due to use. It could have been used as a borer also. The forepart of the folded part is rectangular in cross section.

No. 48: Complete except for a minor break at the top. An indeterminate object. Below the mid-point it is cylindrical, the hollow being secured by rolling. Above the mid-point

it has a thin shaft, rectangular in section and terminating in a curved point where it is broken. Period III

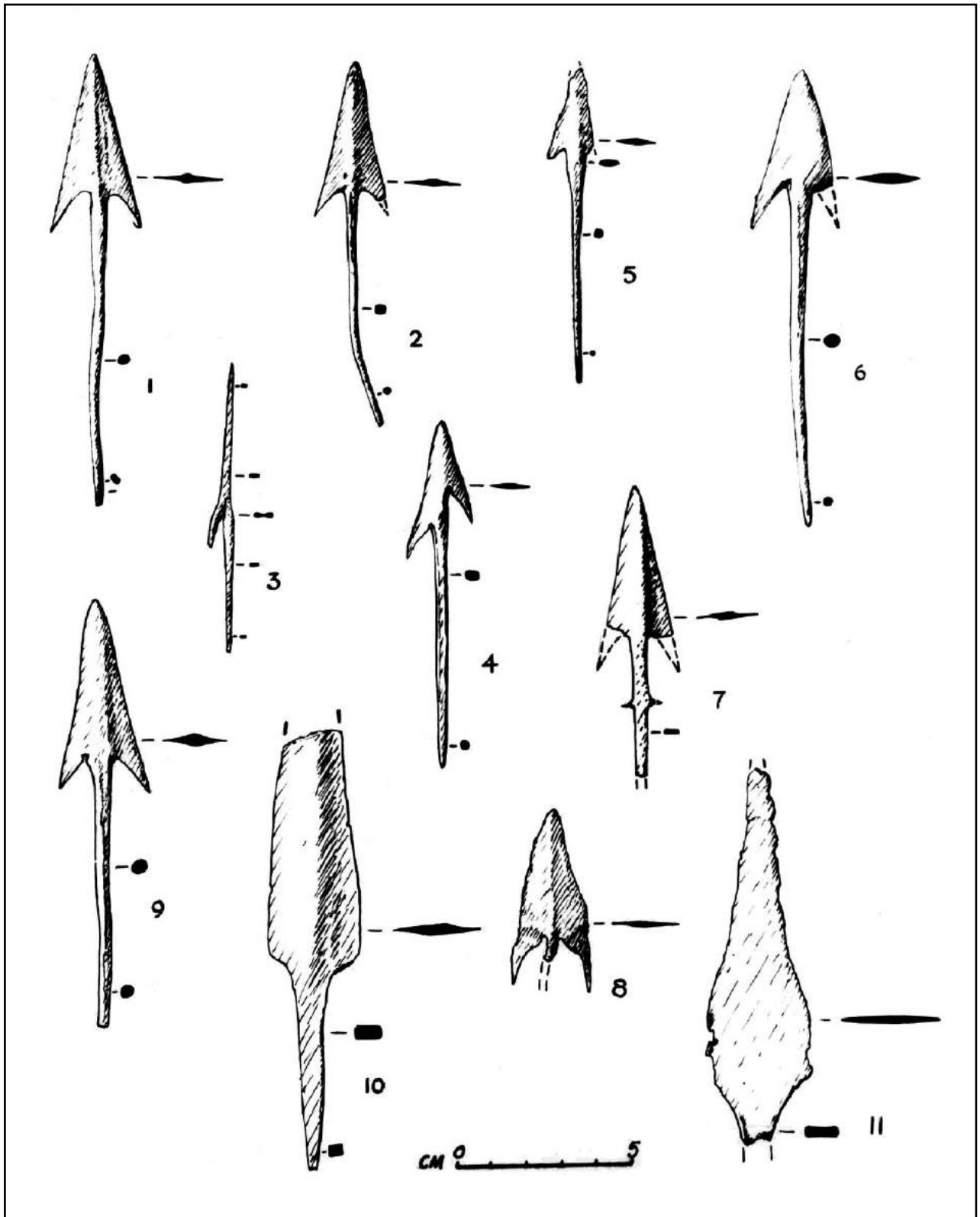


Fig.4.4.1 Metal objects (Copper) Arrow and Spearheads

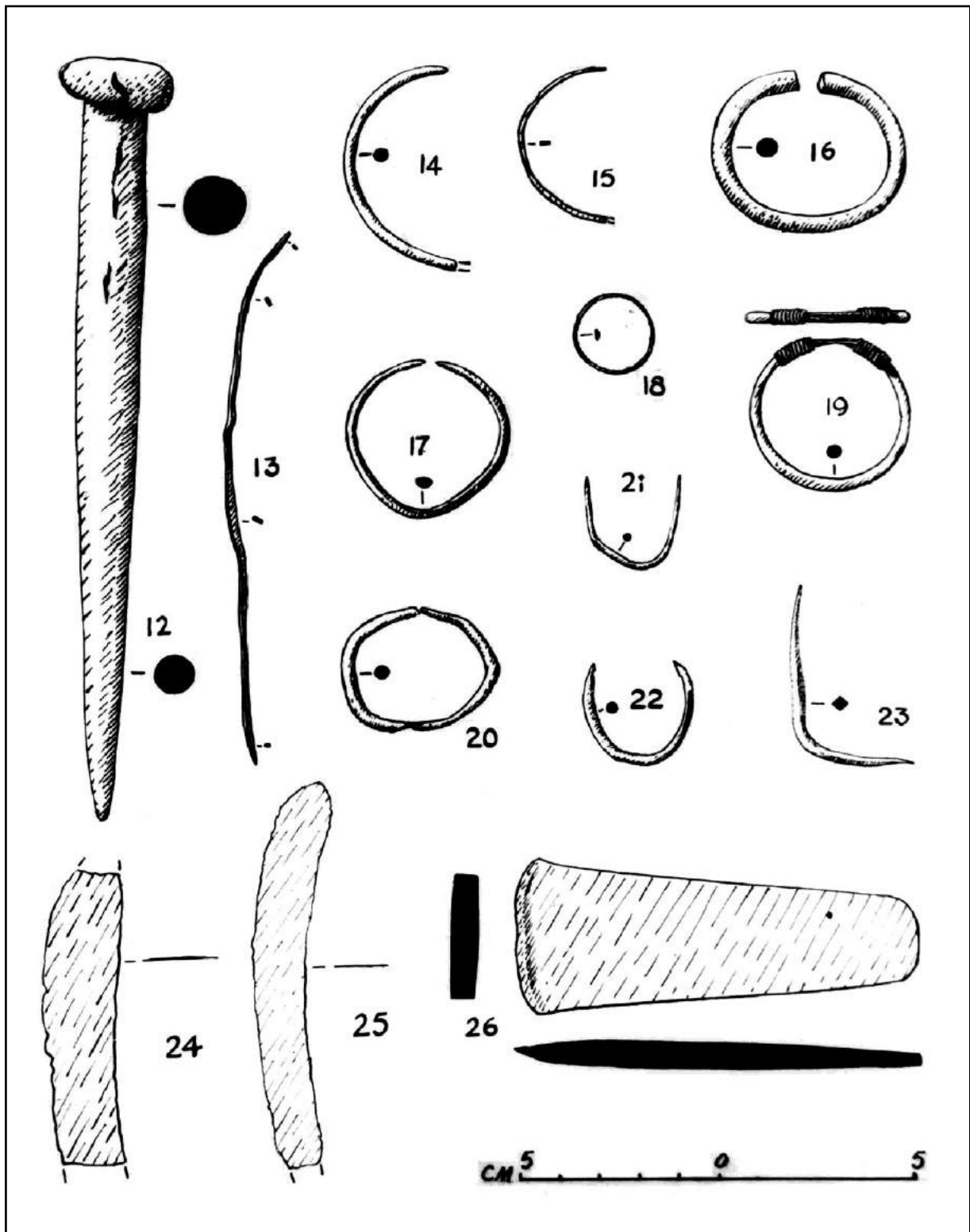


Fig.4.4.2 Metal objects (Copper)

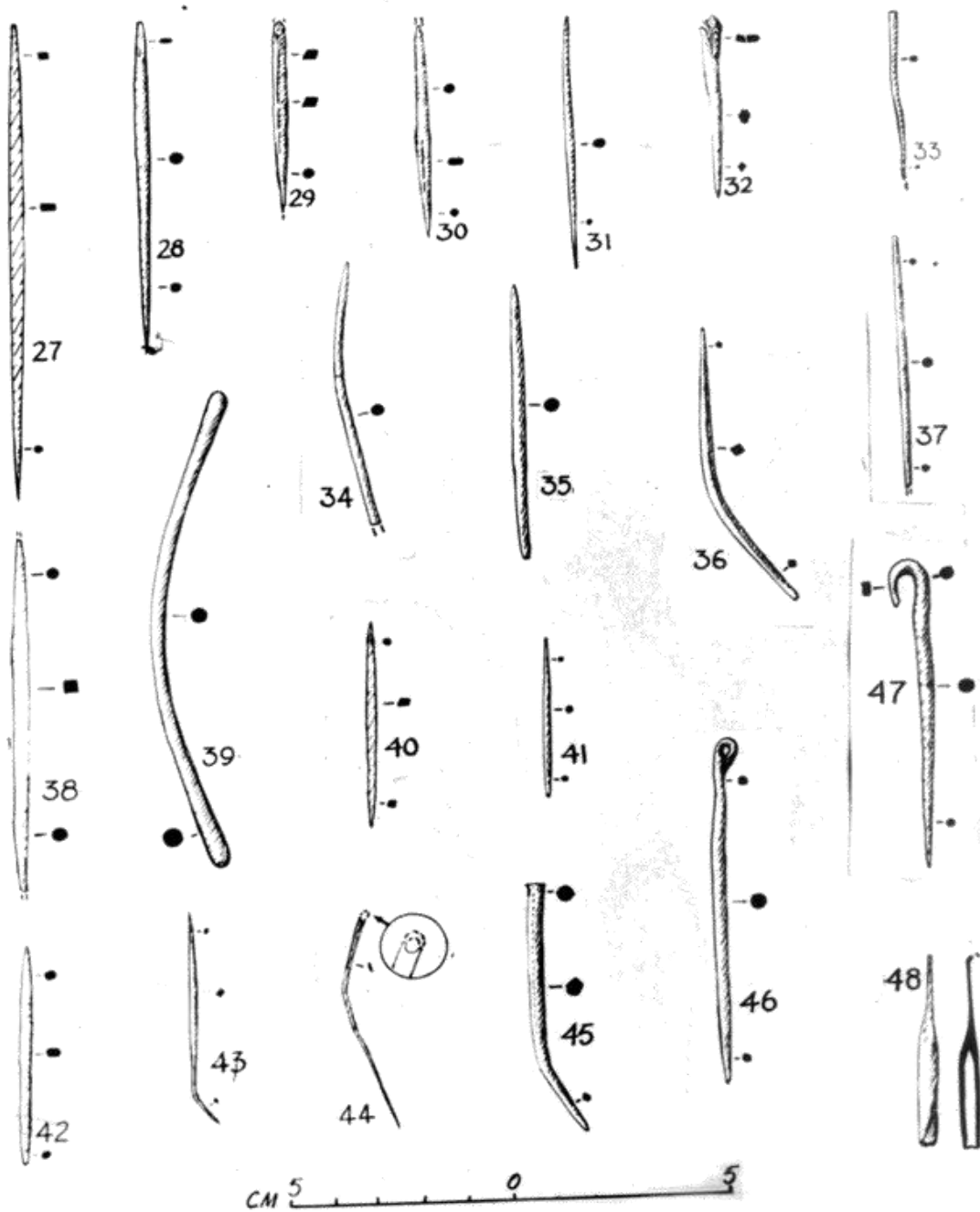


Fig.4.4.3 Metal objects (Copper)

B. IRON OBJECTS:

Next to copper items, there are 12 iron objects mostly found from the surfaces as well as from the upper level of the Historical Period i.e. Period IV and all of which have been detailed out and illustrated (see Fig. 4.4.4). In this collection, there are four arrowheads (illustration nos. 1 to 4) properly tanged, three nails (nos. 5 to 7), a distinctive spear-head (no. 8), a sickle (no. 9), a solitary ring (no. 10), a fragmentary bangle (no.11), and a clamp (no.12).

The arrowheads are tanged and distinctively shaped with the exception of no. 1. No. 1 is a simple arrowhead, crudely done, tanged, but without any special workmanship. The tang is round in section. The top tip is blunt. It appears that the sharp tip has broken and then it may have been slightly finished and retained as such. The position is different in nos. 2, 3, 4. In no. 2 special workmanship is in evidence. The forepart is triangular in outline with a well defined central ridge in the upper portion along the vertical axis, the section being rhomboid in this part and approaches the hexagonal below it. The lateral edges are sharp. The portion below the forepart has been notched, forming a cusp, the shaft approaching rounded in section in this part. The formation of the cusp is nearly similar as in arrowheads in bone in types 8, 8a, 8b. The piercing tip is a sharp point. The tang is elliptical in section. The object is from the surface. In no. 3 the central ridge is better defined on either face and for a longer portion of the forepart on the ventral face but the notching is not as prominent as in no. 2. The section in the upper part is rhomboid and an irregular oval below it. The tang is thicker and approaches pentagonal section. The lateral edges are sharp in the operative part. The object is from layer 1 of Period IV. The sharp tip is broken. In no. 4 the piercing point has broken. The lateral edges of the operative part are not so sharp in nos. 2 and 3. The central ridge is well defined on one face only. The section is rhomboid in the upper section of the forepart, oval below it. The tang is of round section. The object is from layer 2 of Period IV and as such is earlier in point of time than nos. 2 and 3. The sizes of the arrowheads vary from 43 mm to 55 mm.

The three nails (nos. 5, 6, 7) are differently shaped. No. 5 is 119 mm long, round in section with an expanded, folded and rolled head. No. 6 is roughly done, the shaft being rectangular in section and the head is slightly thicker than the rest. It is 74 mm long and the shaft has slightly dented due to use. No. 6 has a knobbed head, the shaft being rectangular in section. The length is 53 mm. No. 8 is a distinctive spearhead 198 mm long, barbed and tanged. The operative part is triangular in outline and the lateral edges are sharp. There is a low but not so well defined central ridge along the vertical axis. The piercing tip is sharp. The barbs are short, approaching the angular in profile

and each barb is partly cleft by being deeply incised. The tang is pretty sturdy, rounded in section in the upper part and rounded rectangular for the rest of the shaft. The object is from Period IV.

The sickle (no.9) except for its modest proportions is just like a modern sickle. The object has been secured from a trial trench from a distant part of the mound. The ring (no.10) is crudely done, irregular in form. The overlapping of the ends is not clearly indicated. It is from an Unstratified Level. The fragmentary bangle (no.11) is rounded rectangular in cross-section. The clamp (no.12) is crudely done. Both the objects are from Period IV. From stratigraphical point of view, illustration nos. 1,2,5,9 and 10 are collected from unstratified level or surface, whereas nos. 3,4,6,7,8,11 and 12 are recovered from the Period IV.

The descriptions of each and every object are as follows:

No. 1: Complete, except for the lower tip of the tang. Arrowhead, 43 mm long (existing length), tanged. In its full form it may have been about 45 mm. The tang is roughly rounded in section. The operative part approaches rectangular in cross-section, tapering towards the top. The tip of the forepart is a blunt point. It appears that the sharp tip may have broken and then the point may have been refinished and retained as such. The workmanship is rather crude. Unstratified

No. 2: Complete. Arrow-head 55 mm long distinctively shaped and tanged. The tang is elliptical in section. The forepart is triangular in outline, the piercing tip being a sharp point. The portion above the is rounded in section. The upper part has a well defined central ridge on either face along the vertical axis. Below the forepart, the shaft has been notched to form some sort of a cusp above the tang. The lateral edges are sharp in the forepart. Surface

No. 3: Complete except for the sharp tip, which is broken. Arrowhead, is 46 mm long, . The tang is comparatively shorter than 1 and 2, approaches rounded section. Above the tang, it is triangular in outline with a well-defined central ridge along the vertical axis on either face. The dorsal face shows partially pitted surface. The cross section shows rhomboid shape in the upper part and flattened oval below it. Period IV

No. 4: Complete except for the sharp tip which is broken. Arrowhead, 40 mm long (existing length), tanged. In its full form it may have been about 43 mm long. In shape it

resembles no. 2, with minor variations. The tang is rounded in section and above it approaches the oval and then rhomboid in the upper part. Period IV

No. 5: Complete. Nail, 119 mm long with an expanded, folded and looped head. The shaft is round in section tapering to a sharp point. Unstratified

No. 6: Complete. Nail, 74 mm long with a thicker head than the rest of the shaft. The shaft is rectangular in cross section and dented in the central portion due to use. The fabrication is rather poor. Period IV

No. 7: Complete. Nail, 53 mm long with a knobbed head. The shaft is rectangular in cross-section terminating in a point. Period IV

No. 8: Complete. Spearhead, 198 mm long, barbed and tanged. The tang is round in section in the upper 1/3rd part and then roundedl rectangular tapering to a stocky point. The operative part is triangular in outline with sharp edges terminating in a point at the top. There is a central ridge along the vertical axis, but not so well defined. The barbs are distinctive, short, approaching the angular in profile and partly cleft along the vertical axis with a deep incision. Period IV

No. 9: Complete. Sickel. Secured from a distant part of the mound from a trial trench. Though smaller in proportions, it looks like a modern sickle. Unstratified

No. 10: Complete. Ring. It is irregularly shaped and crudely done. There is no indication of the overlapping of the ends. The hollow part may have been scooped out. The workmanship is pretty crude. Unstratified

No. 11: Broken. Fragmentary bangle rounded rectangular in cross section. Period IV

No. 12: Complete. Clamp. It is distorted in form and one of the ends is blunt. Period IV

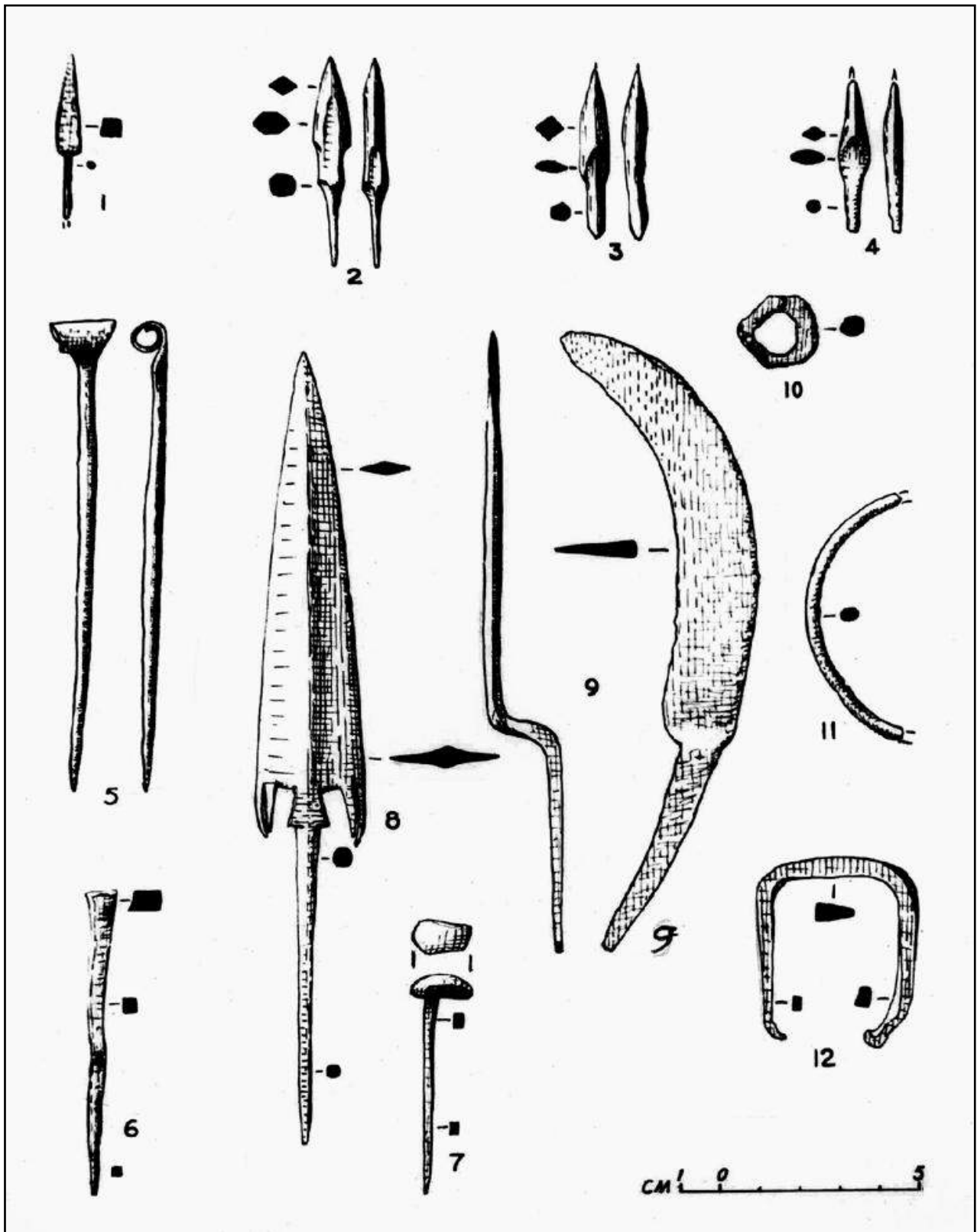


Fig. 4.4.4 Metal Objects (Iron)

4.5 BEADS AND PENDANTS contributed by B M Pande

The material culture recovered from the Burzahom excavations (1960-1971) divulged contact of the Neolithic people of the Kashmir Valley with the Harappans. This is confirmed by the discovery of decorated globular pot with a horned deity painted on its shoulders (IAR 1964-65: 13, Saar 1992: 14). It resembles a wild goat with curved horn and hanging ears. It has an almost parallel in Kot Diji and Gumla (Thapar 1985: 34-38) with Harappan and Pre-Harappan affinities. This was further substantiated by finding of the pot which was sealed by a thick and hard layer of mud deposit, on removal of which revealed a hoard of 950 beads of agate and carnelian within it. Other sets of evidences illustrating the contacts are copper barbed arrowheads with prominent mid ribs, ring, bangles, pin, spiral-headed copper pins, beads and pendants recovered from the site.. All these are indicative of connections with the cultures outside the valley. Among these findings, beads and pendants of various levels of excavations are worth mentioning. B.M. Pande, one of the members of the excavation team made special study on the beads and pendants of Burzahom. (Pande: 2000)**A.BEADS**

It may be pointed out that the existence of an aceramic level of Neolithic Culture at Burzahom was not identified during the earlier excavations, as the site was much disturbed. Hence, precise nature of the cultural sequence available in the unpublished data was not conclusive. Subsequently, the aceramic phase of Neolithic Burzahom, labeled as Period-I, was established in 1980 and 1981. Thus, the beads made of semi-precious stones revealed from period I could be due to informing o later strata with the earlier ones.from the upper levels.

However, during the course of excavations at Burzahom 1497 beads were found (IAR 1971-72: 24, IAR 1964-65: 13). Out of these, 1488 were gleaned from various periods, while 9 beads were either from Un-stratified levels or collected from the surface of the mound. The period wise distribution of 1488 beads is as follows: Period I, 18; Period IIA & IIB, 995; Period III, 470 and Period IV, 5.

Except for two hoards of bead, consisting of 950 and 456 from Period II (including IIA and IIB) and Period III respectively, most of the beads were found individually barring, 10 beads found from the same layer and depth inside a pit cut into a Dwelling Pit of Period II and 5 carnelian beads from the around the neckof a human skeleton. Of the 950 beads which were found within a pot inside a pit of Period II, 864 were of carnelian (Fig. 4.5.1 & 2) and 86 of agate (Fig. 4.5.3); of the 456 beads from Period III, 430 were of agate (Fig. 4.5.4 to 7), 25 of gold and one circular gold amulet

with a perforated boss and an agate eye-bead studded in the centre (Fig. 4.5.8). Thus, out of a total 1497 beads, 91 were found as individual specimens.

Period I yielded 18 beads, of which 13 were of bones, 2 of carnelian and one each of terracotta, Jade and Steatite. Beads from Period IV were of only 5 in all, of which one was of Carnelian and 2 each of terracotta and yellow clay.

The materials used for manufacturing of these beads are: bone; semi-precious stones like carnelian and agate; black stone and serpentine marbles; steatite; white paste bead; yellowish clay; terracotta; and gold. The materials for yellowish clay and white paste beads are yet to be determined or identified. The period-wise distribution of beads according to the material is given in the appended Table I. It shows that carnelian and agate beads respectively account for 59.30% and 34.53%, while bone beads for 2.87% and gold beads 1.67% of the total yield. Beads of other materials are relatively few in number and form a very small percentage of the total yield. Carnelian and agate beads obviously form a higher percentage of the total yield as they were found in hoards; likewise, gold beads also formed part of the hoard of beads from Period III which contained 438 agate beads. Apart from finished ones, there are also some unfinished specimens of bone beads; beads made of carnelian, agate, steatite, gold, and serpentine marble are all finished specimens.

The bone beads (Fig. 4.5.9) are mainly long barrel circular or long cylinder circular, some of them bearing very fine polish. There are also some finely polished beads which seem to have deliberately been burnt, perhaps in the process of polishing the surface. with one end un-worked; another specimen, with one end finished, bears very fine polish. It therefore seems that the beads were given a polish even while in the process of manufacture.

All the bone beads are plain except for one specimen which has four uneven incised grooves on the body along the perimeter. The largest complete bone bead is 2.8 inches while the smallest is 0.51 inches long; on an average the bone beads are 1.50 inches long. one bead is long cylindrical and the other one is flat. While attempt seem to have been made to shape the bone beads into barrel or cylinder shapes, some of the beads, because of the form of the bone used, are not perfect barrel or cylinder and show either constriction in the middle or both the ends.. However, in view of their appearance barrel or cylinder, these have been respectively classed into these categories and are described as such. All the beads have a single-hole while one specimen which is unfinished, has two holes and was perhaps a spacer bead in the making.

The unfinished specimens give an idea about the mode of preparation of bone beads, which were made out of the long bones of animals. It appears that after cutting the bone to the size generally bigger than the size, envisaged and making a perforation by removing the marrow, the ends were worked by chiseling or scraping. This seems apparent from the four unfinished specimens, of which 3 shows cut marks on the worked end, while the fourth specimen has its perforated end in finished shape.

Bones beads were in use in the Neolithic Periods IIA and IIB and continued to be used in Period III termed as megaliths (may also be called as extended Neolithic) and are totally absent from Period IV which is early historical. The bone beads found from the surface or un-stratified deposits are similar to the beads found in the deposits of Periods IIA, IIB and III and could belong to any of these periods as in terms of their form and shape there is a continuity of types. All the bone beads seem to have been worn as is clear from the polish which apart from the deliberate attempt, could have been the result of their having been worn.

TABLE - I: Period-Wise Distribution of Beads classified according to Material

Period Material	Pd. I	Pd. IIA & IIB	Pd. III	Pd. IV	Un- stratified & Surface	Total	Percentage
Bone	13	18	8	-	4	43	2.87
Carnelian	2	884	-	1	1	888	59.30
Terracotta	1	1	3	2	1	8	0.053
Serpentine Marble	1	-	-	-	-	1	0.06
Steatite	1	4	1	-	2	8	0.53
Agate	-	87	430	-	-	517	34.53
Black Stone	-	1	-	-	-	1	0.06
Gold	-	-	25	-	-	25	1.67
Yellowish clay	-	-	2	2	-	4	0.26

Paste	-	-	1	-	1	2	0.13
Total	18	995	470	5	9	1497	
Percentage	1.20	66.47	31.40	0.33	0.60		100

Carnelian beads are the largest in number, forming about 60% of the total yield. This is due to the fact that out of the total 888 carnelian beads, 864 were found together in a pot from Period II. Of the remaining 24 beads, respectively 10 and 5 beads from Period II were found together, the latter being found near the human skeleton. Of the remaining 10 beads, 2 were from Period I, 5 from Period II, one each from Period IV and surface. Thus, besides the hoard of 864 carnelian beads, Period II yielded another 20 beads. No carnelian bead was found from Period III.

The carnelian beads are barrel circular, cylinder circular, bicone circular, truncated bicone circular, truncated convex bicone circular, concave bicone circular, and hexagonal. As can be seen in Table II (period-wise distribution of beads classified according to shape), long bicone circular, long truncated bicone circular and long truncated convex bicone circular beads are the largest in number with 73, 517 and 214 examples respectively of these types. The long hexagonal and long concave bicone circular beads are comparatively few 5 and 10 in number respectively, and were not made in the other material used for making beads.

Notwithstanding the fact that the hoard of 864 beads was found from inside a pot, it is obvious from the wear and tear and polish that they had been put to use. Of the remaining carnelian beads, it has already mentioned that 5 were recovered from the neck region of a human skeleton, while 10 beads were found from a pit cut into a dwelling pit of Period II, at a depth of 163 inches, along 2 steatite beads.

Agate beads, 517 in all are the next highest in number, 87 from Period II (IIA & IIB) and 430 from Period III. No agate bead was found either from Period I or Period IV. Out of the 87 agate beads from Period II, 86 were from 950 beads found inside one pot, and 430 agate beads from Period III were again found together from the trial trench near the proposed Museum site along with which were also found 25 gold beads and a pendant of gold studded with an agate eye-bead. The short lenticular agate bead found as a single specimen, out of 87 agate beads from Period II was found from inside a pit sealed by layer 5 at a depth of 60 inches.

TABLE II																												
PERIOD - WISE DISTRIBUTION OF BEADS CLASSIFIED ACCORDING TO SHAPE																												
PERIOD		I				II				III				IV			UNSTRATIFIED AND SURFACE				TOTAL							
SHAPES	MATERIAL	BONE	CARNELIAN	TERRACOTTA	STEATITE	SERPENTINE MARBLE	BONE	CARNELIAN	TERRACOTTA	STEATITE	AGATE	BLACK STONE	BONE	TERRACOTTA	STEATITE	AGATE	GOLD	YELLOWISH CLAY	PASTE	CARNELIAN	TERRACOTTA	YELLOWISH CLAY	BONE	CARNELIAN	TERRACOTTA	STEATITE	PASTE	
BARREL CIRCULAR	LONG	4				7	16		3	79				1		224	2					2	1		1		1	341
	STANDARD				1		1										23										25	
	SHORT						1		1							34										1		37
CYLINDER CIRCULAR	LONG	8				11	1					1	8	2		10		2	1				3					47
	STANDARD				1																1							2
	SHORT														1													1
BICONE CIRCULAR	LONG							73																				73
	STANDARD							5																				5
	SHORT							13																				13
TRUNCATED	LONG		1				515																	1				517
BICONE CIRCULAR	STANDARD							11	1												1							13
	SHORT		1	1				11								1												14
	LONG							214																				214
CONVEX BICONE CIRCULAR	STANDARD							8																				8
	SHORT							1																				1
	LONG							9																		1		10
HEXAGONAL	LONG							5																				5
	STANDARD																				1							1
LENTICULAR	LONG									1						32												33
	STANDARD															59												59
	SHORT									1						56												57
RECTANGULAR TABULAR	LONG									1																		1
EYE	ROUND									2						8												10
	OVAL									1						6												7
	FISH SHAPED									1																		1
LEECH SHAPED										1																		1
OTHER		1																										1
	TOTAL	13	2	1	1	1	18	884	1	4	87	1	8	3	1	430	25	2	1	1	2	2	4	1	1	2	1	1497

- A single specimen of Jade bead was found from Period I.

Of the 87 agate beads from Period II, 79 are long barrel circular, 2 round eye-beads, and one each standard lenticular, short lenticular, rectangular tabular, oval eye-bead, fish-shaped eye-bead and leech-shaped. Of 430 agate beads from Period III, all of which were found together, 224 are long barrel circular, 34 short barrel circular, 10 long cylinder circular, 147 lenticular, one short truncated bicone circular and 8 and 6 round and oval eye-beads respectively. One round eye-bead (not included in the list of beads in Table I and II) was studded in a gold pendant found along with 25 gold beads from the hoard of 430 agate beads from Period III. Some of the agate beads are very tiny and show exquisite workmanship. Agate used for making beads is of the banded variety and is either honey yellow or yellowish brown in colour.

Gold beads, 25 in number comprise 1.67% of the total collection which was revealed only from period III and marked the economic progression during this period. Along with the gold beads, was also found a circular gold pendant with a perforated

boss and round agate eye-bead studded in the centre. All the 25 gold beads are barrel circular. The beads are rather small in size, the standard barrel circular are on average 0.118 inch in length while the 2 long barrel circular beads are 0.3 and 0.25 inch in length.

Of the 8 beads of steatite, which comprise 0.52% of the total yield, one each was from Period I, and III, 4 from Period II and 2 from the surface. The types in steatite beads are barrel circular, cylinder circular and concave bicone circular.

Terracotta beads, 8 in all, were found from all the periods including one from un-stratified levels and are long barrel circular, long and standard cylinder circular, standard and short truncated bicone circular.

The yellowish clay beads are very crude specimens; 2 examples of each were found from Period III and IV. Both the beads from Period III have been classed as long cylinder circular and from Period IV as long barrel circular notwithstanding the rather uneven form. One white paste bead each was found from Period III and un-stratified levels, the types being long cylinder circular and long barrel circular.

The single specimen of serpentine marble bead (Fig. 4.5.10) was found from Period I and is standard barrel circular and of good workmanship. It was found inside a dwelling pit. The only black stone long cylinder circular head was found from Period II and was broken from one end.

The single specimen of Jade bead was found from Period I and is standard barrel circular and of good workmanship. It was found from inside a dwelling pit.

In view of the fact the majority of carnelian, and all agate and gold beads were found in hoards and also because carnelian, agate and gold are not locally available, it is likely that these were not locally manufactured and are perhaps exotic to Burzahom. Likewise, beads of steatite and serpentine marble, in view of the non-availability of these materials in the region might also have been extraneous to Burzahom. It is a fact that the hoard of 950 beads were kept in a red ware pot with another pot of indubitable Kot Diji affiliation and since some of the beads have parallels in Harappan beads, it is therefore quite likely that these including the steatite beads are imports from some Harappan Site.

B. PENDANTS

Objects made variously of animal bone and tooth (Fig. 4.5.11), stone, terracotta, shell and used perhaps as pendants and objects of indeterminate use having different shapes and forms, with one or more perforations, were found from Period II (IIA & IIB),

III and IV and from the surface or un-stratified deposits. Significantly, no object which could be included in the category of objects described here was found from Period I.

The pendants made of animal tooth are 5 in number, 2 each from Period II and Period III and one from un-stratified deposits. Except one, which was from Period III, the other 4 had a perforation on the bone end; the single piece without perforation had incised groove towards top on the bone and is bigger in size than the rest. All the tooth pendants bear fine polish; one specimen from Period II in particular is very finely polished. These tooth pendants, in all likelihood, were worn as amulets.

The two-pronged bone objects with a curved profile having a perforation and convex top is a unique object and was found from Period III. It is difficult to determine its use, and it could have been used either as pendant or a hair pin though its use as a pendant seems to be more likely.

The elongated shell object from Period IV with a club-shaped knob at the wider end is again unique and was perhaps used as a pendant.

The rectangular bone or ivory object with a pair of two concentric circles one above the other and dot on both its faces and perforation on one end from Period III is also the only specimen of its type and was perhaps used as an amulet.

The highly polished bone object, broken from both ends, has marks of a vertical hole on one end and a perforation on the other end. The object was found from the surface.

Four circular reel or spool shaped objects were found from period II and Period IV, two from each period. All the four examples are identical in shape. Those from Period IV being slightly smaller in diameter as compared to those from period II. Of the two such objects from Period II, one was of Terracotta and other of Calcite. The terracotta reel or spool-shaped object from Period IV was finely made and bears a light red slip. Other specimen is of whitish stone. On the analogy of similar objects from a number of sites, these could also be identified as ear pendants.

The circular grey marble dice having three holes of varying diameter at unequal distance from each, was found bear human skeleton of Period II. It has a groove across the two holes ,evidently because of tying with some king of string or cord. The opal disc perforations and plano-convex calcareous shale circular objects both from Period III are of interminate use.

The black stone plano-convex circular object with two perforations also bears marks across the holes as a result of tying. It was found from Period IV.

Among the stone objects having rectangular, trapezoidal, oval and irregularly circular shapes, the most interesting are; flat, oval-shaped marble objects with perforation at the distal ends and a single object with a perforation at the wider end, both from Period II. The latter and the flat oblong grey stone objects with a perforation at one long end and collected from the surface and the flat stone object with perforation at one end found from Period IV were used as a drop pendant or amulet.

The use of the cylindrical stone object with perforation at both the ends which were found from Period III is difficult to determine.

The trapezoidal flat object with two perforations at the wider and not parallel to the top, from Period IV; was also used as a pendant.

It is interesting to observe that in all the objects the hole shows an hour glass section which indicates that the hole was made by engraving the hole from both the faces of the objects.

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Fig. 4.5.1 Carnelian Beads (presently at National Museum, New Delhi)

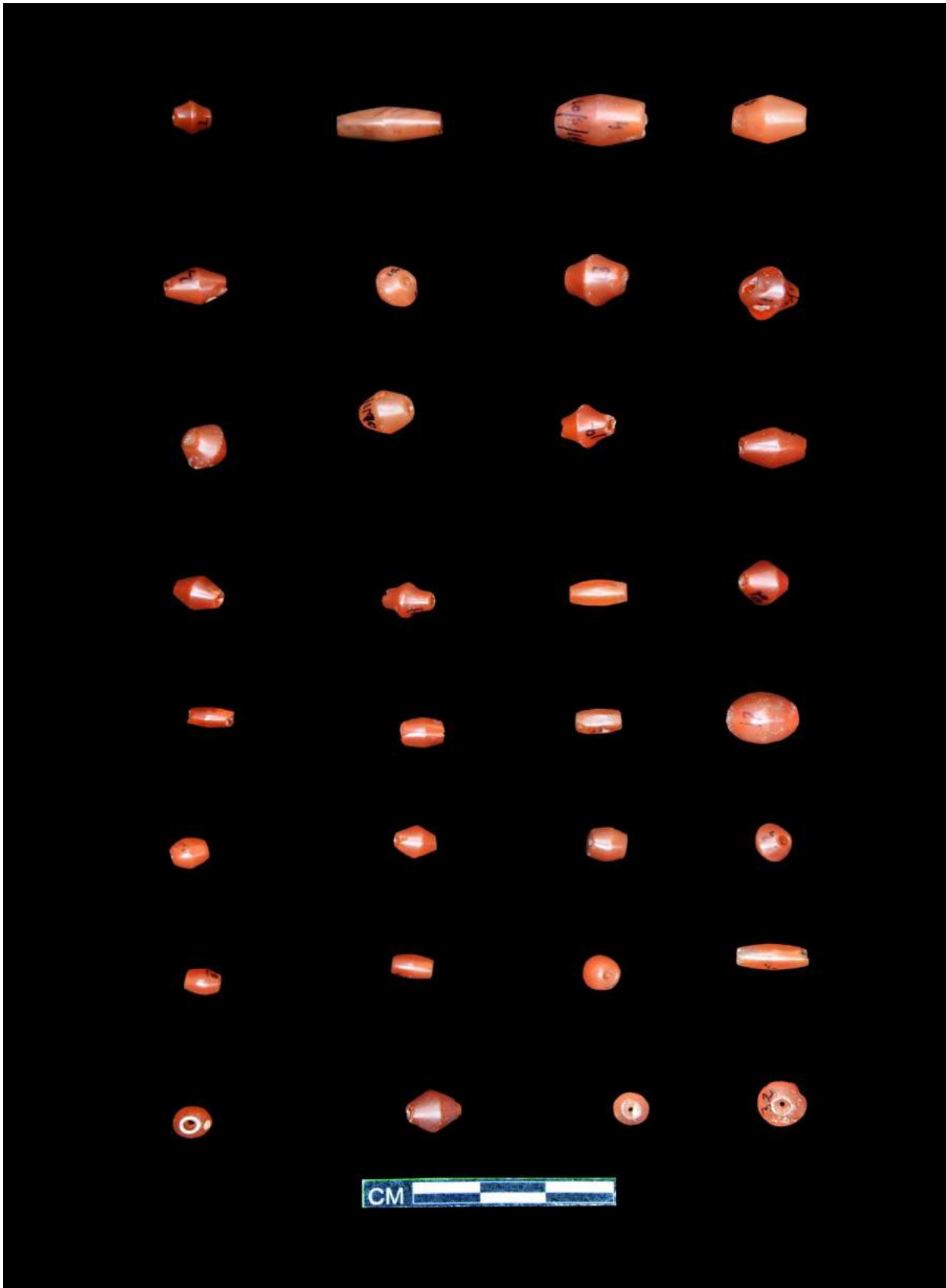


Fig. 4.5.2 Carnelian Beads



Fig. 4.5.3 Agate Beads

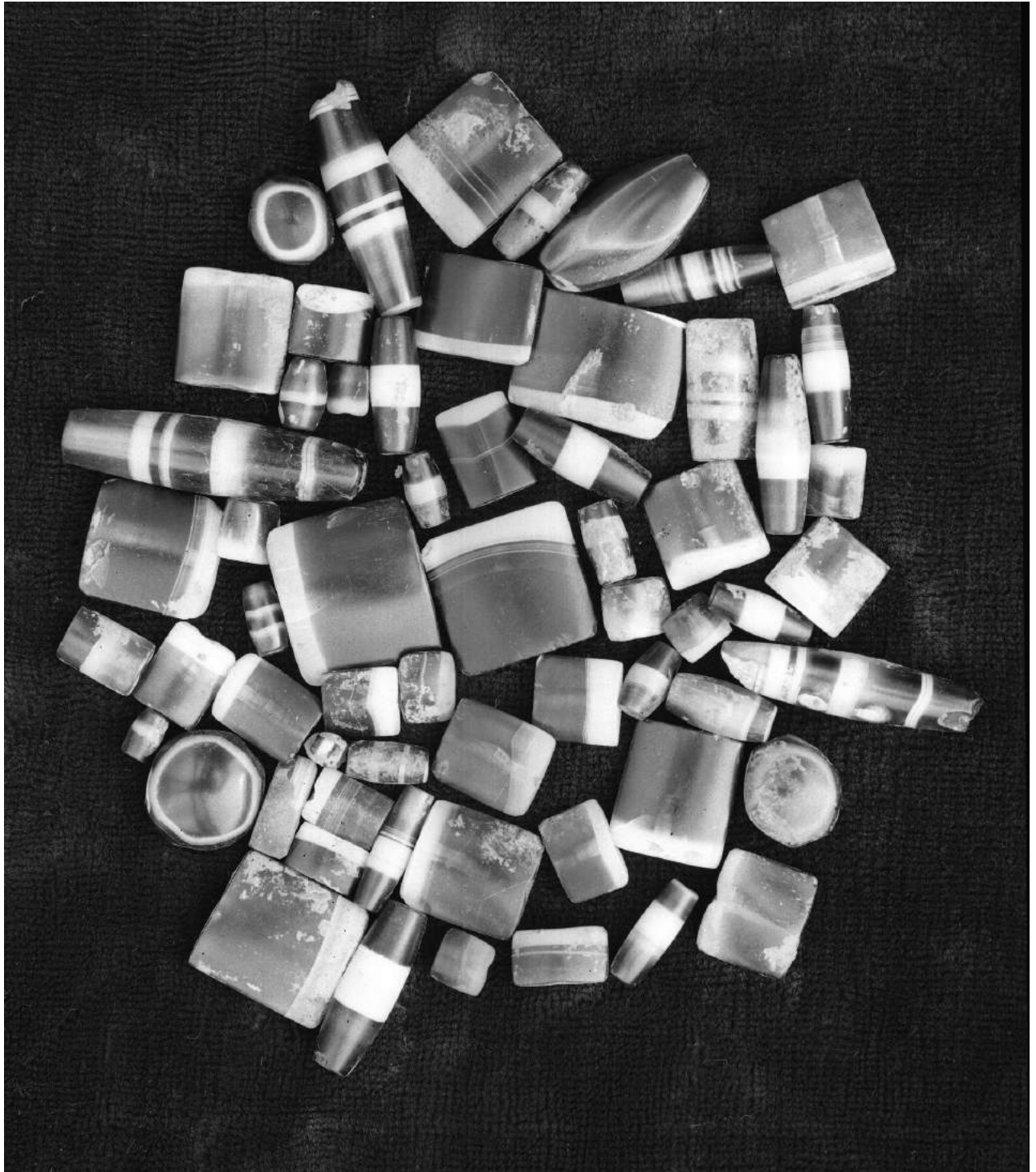


Fig. 4.5.4 Agate Beads



Fig. 4.5.5 Agate Beads



Fig. 4.5.6 Agate Beads



Fig. 4.5.7 Agate Beads

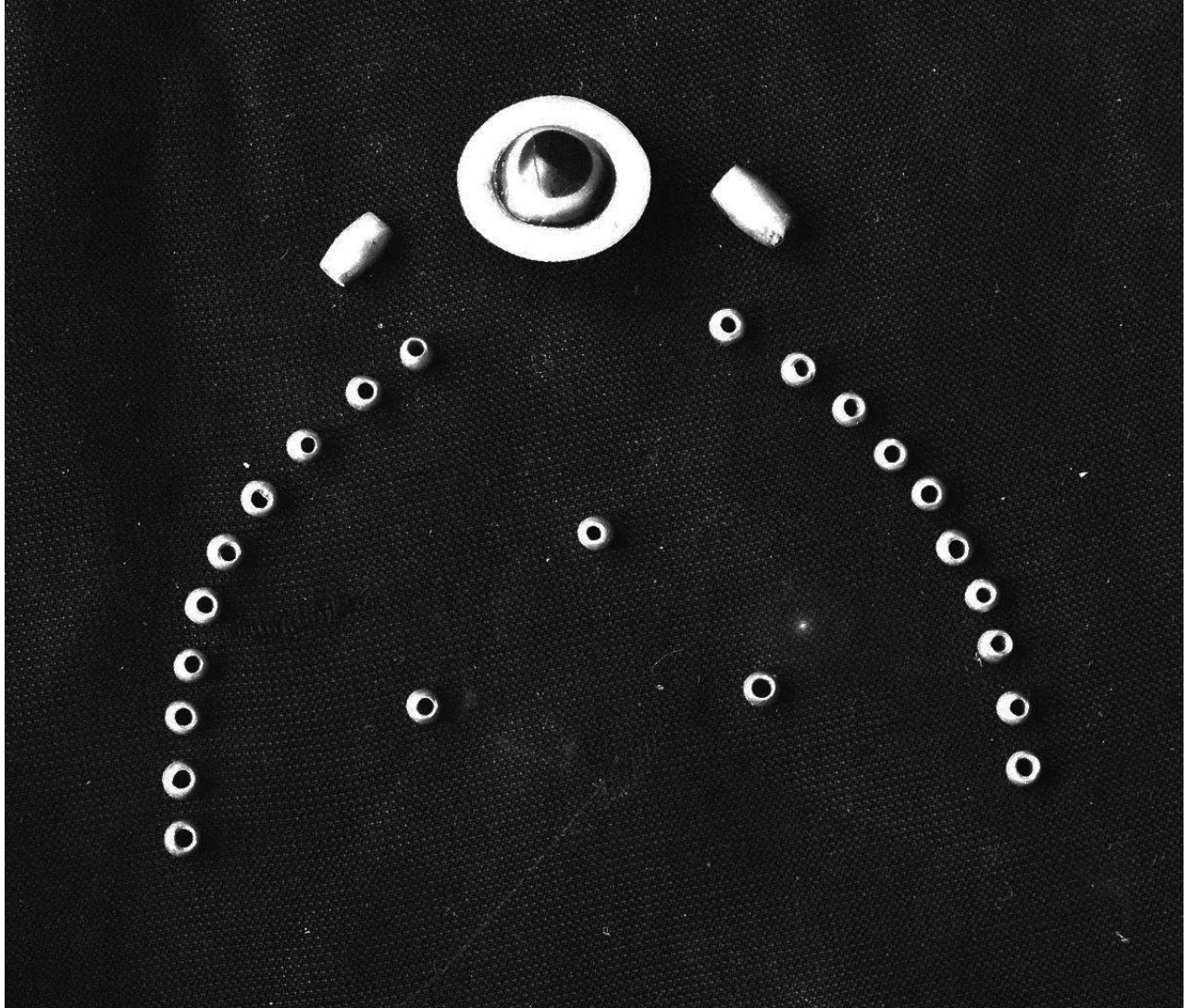


Fig. 4.5.8 Gold Beads





Fig. 4.5.10 Marble Beads



Fig. 4.5.11 Pendants and Amulets

5. ART OBJECTS

Art is the expression of aesthetics through diverse and varied mediums. When the medium of expression is through craftsmanship of objects symbolising the technical expertise and art skills which communicate the nature of material culture of a period, it assumes even greater significance. It not only caters to various needs pertaining to the societal practices and religious ceremonies and rituals, but also throws light on the socio-cultural, political and economic conditions of the people. Every art object, therefore, demands contextual explanation (Hodder 1989: 15).

The Neolithic art objects from Burzahom, though relatively few, provide interesting information about the early food gatherers of the Kashmir region. The tools made from stone, bone and antler or for that matter pottery shapes recovered from Burzahom excavations - each individual piece is a creation of art. The inhabitants of Burzahom had transformed their art impressions by engraving the scene of hunting adventures or hunt parties which were engraved on the stone slabs found from the middle level of Neolithic Period IIB. Such aspect signifies and illustrates a tradition that has significant importance in the history.

Two engraved stone slabs were unearthed from Burzahom excavations. The engraving on one of the slabs depicts hunting scene (IAR 1964-65: 13). Although, the structural and living pattern were determined by the effective use of tools made of both stone and bone, but hunting especially with bow and arrow seems to be the main source of subsistence at Burzahom. This is also substantiated by the finding of arrow and spear heads in bone in large numbers and discovery of an engraved stone slab depicting hunting scene. This stone slab is a part of an oblong (irregular rectangular) structure found in filling of yellowish sand (IAR 1962-63). The importance of the engraved slab lies in the fact that it appears to be the only authentic evidence of Neolithic art in India with stratified chronological horizon. Another stone slab with a tectiform engraved on it has also been found from the Neolithic level. Both the engraved stone slabs are the first find of a graphic representation of Neolithic life from a regular stratified excavation in India. Also it is the first indubitable example of Neolithic art in India, for other examples have been dated differently by scholars. The scene probably portrays one of the principal occupations of the Burzahom people in the Kashmir valley during the 2nd millennium BCE.

The stone slab is flat on both faces, the carved side being smooth compared to the un-carved one. It is irregularly cut, with a maximum width of 70 cm. It is partially damaged towards the top, as a result of which the uppermost part of the scene is lost to

a small extent. However, the break is certainly not a fresh one and perhaps this very break might have resulted in its subsequent reuse as an ordinary slab in the structure.

The hunting scene is incised on the upper half of the stone and has a maximum height of 45 cm; the engraving itself covers an area of 48 x 27 cm and is divided into two registers. The engraving depicts a hunting scene showing a stag being pierced from behind with a long spear and struck from the front by an arrow by two hunters. The upper portion of the scene shows two Sun and a dog (Fig. 5.1 and 5.1a).

The entire human and the animal figures depicted in the scene can be identified because of the distinct delineation. For instance, of the two human figures, the one facing the stag is a male and the other behind the stag is a female; the male figure (facing the stag) has been shown with exaggerated genitals between the legs, while the other figure (behind the stag) can be identified as a female on the basis of the breasts seen clearly in her contour-profile and the skirt type dress she is wearing. The identification of the latter as female is further attested by her attacking posture, in which she has been shown standing akimbo, so characteristic of a female, while thrusting the spear into the animal. Further, this figure is also shown without the representation of the genitals, which are depicted quite clearly in the case of her male companion. The figure of the central animal is of the stag (*cervus elaphus*); the excavation itself yielded the skeletal remains of the animal. The dog seems to be a domesticated one and trained in accompanying the hunting party. Representation of the genitals of this animal also shows that it is a male. As it is, the engraved slab indicates a realistic representation of the hunt. But one or two points demand special attention. The exaggerated genitals in the human male and the animal figures of the dog and the stag represented in the scene may convey the prevalence of some sort of *phallicism* or fertility concept among the Neolithic community at Burzahom. It is also clear that women also participated in the hunt.

The two symbols on the topmost part represent the sun, one of which perhaps represents the day of the hunt and the other the day of successful return (Campbell 1960: 296-97). This interpretation is based on the primitive concept of the Deathless Animal and the ritual of the Returned Blood, where in the sun plays the vital role; an account of the ritual and the cognate concept among the African Pygmies has been narrated by Leo Frobenius (Campbell 1960: 297). Significant in the context of the Burzahom hunting scene is the interpretation that, "The crucial point of the Pygmy ceremony was that the rite should take place at dawn, the arrow flying into the antelope precisely when it was struck by a ray of the sun (Campbell 1960: 297).

For the sun is in all hunting mythologies a great hunter. The sun is the hunter, the sun's ray is the arrow and the antelope is one of the herds of the stars; ergo, as tomorrow night will see the star return, so will tomorrow the antelope. Nor has the hunter killed the beast as a personal willful act but according to the provision of the Great Spirit. And in this way 'nothing is lost'" (Campbell 1960: 298).

The other carved stone slab depicts an incomplete pattern identified as a tectiform was found from the same site in 1965-66 season (IAR 1965-66). The engraving represents a complicated design forming an incomplete pattern. The stone slab is broken at the edge and is roughly triangular or conical in appearance (Fig. 5.2). As stated in the case of stone slab bearing a hunting scene, this engraving is from a stratified level which makes it an important evidence of Neolithic art from Burzahom. B. M. Pande, one of the members of the excavation made a special study of both the engraved slabs (Pande 1971 & 72). He made it out that the pattern or design seems to be an abstract representation of a hut with a thatched domical roof and a prominent broom shaped spire. On the drum portion of the hut to the proper right hind portion of an animal and its tail can be seen clearly. The entire figure is highly stylised and abstract and can be identified as a tectiform, commonly depicted in Palaeolithic rock-painting and engravings found elsewhere (Graziosi 1960: 185-86).

The engraved stone slabs of Burzahom needs to be studied in a wider perspective of rock art as known from the surrounding areas in the Trans-Pamir side, Chilas, Swat, Xinjiang, Ladakh and Himachal Pradesh. The most peculiar character of these rock carvings is that they depicts a common theme of hunting scene, animals, bows and arrows, religious symbols, etc. Thus, there is a cultural continuity form Prehistoric to Historic times covering a vast span of time and a vast geographical area.

Apart from these two engraved stone slabs, aesthetic expressions of the Neolithic Burzahom are also found in some specimens of pottery, beads, and bone tools. The pottery sequence in Burzahom is quite distinctive and reflective to the technical advances made by virtue of cultural and commercial contacts and requirements induced by life style. The earliest pottery found at the site was handmade. This type of pottery was made by employing the special coil and strip technique. On the base of these handmade pots a variety of mats impressed designs are noticed (Fig. 5.3).

Further advanced technique in pottery making is in evidence with the presence of burnished grey ware and fine grey ware. Due to repeated rubbing and polishing the external surfaces of the burnished wares are made smooth and lustrous. Even external decorations have been marked on various pots. Among these, a dish in burnished grey

ware is the solitary example of its kind ornamented with incised figurines of crane like birds on its internal as well as external surfaces. On the internal surface there are four widely spaced figurines of birds incised horizontally parallel to the inner edge of the pot, showing beak of each bird behind the tail of another. Externally there are three incised figurines, of which two, shown perpendicular to the periphery, are closely spaced with beaks almost touching the rim, while the third, opposite these two on the middle section of the dish, is incised horizontally parallel to the periphery of the pot in the clock-wise direction (Fig. 5.4). The graffiti marks on the pottery represent different linear geometrical patterns, one of which looks like a hut whereas another one resembles a mirror reflected trapezoid.

The Burzahom potters have exhibited their skill and aesthetic sense remarkably in strip/loop potting technique. Thus, various patterns were worked on bands/button like pellets, which were appliquéd to the body of the pot at the junction of two strips/coils employed in strip/coil potting. This is a noble device of hiding the awkward/weak joint by ornamenting it with an ornamented band in appliqué. In addition, we have an amazingly large variety of the mat impressions on the pottery. The patterns of mat impressions include chevron, horizontal and vertical strips interlaced one over another, various horizontal and vertical combinations of strips, and the like. However, decorative motifs are restricted only to external surface of the pots, and consist of appliqué work, pinching at regular intervals, thus presenting a pattern of protrusions and depressions, approaching an irregular beaded design, grooving, cut-outs, and the like.

Here, it can be assumed that changes in advance pottery technique were induced by contact and trade. This is confirmed by the discovery of a painted Pot with a horned deity painted on its shoulders. It resembles a wild goat with long curved horns and hanging ears. A similar example is seen at Kot Diji and Gumla with Harappan and Pre-Harappan affinities. This pot has been found from Period II of Burzahom and can be placed in 2nd millennium BCE (Fig. 5.5).

The authors of Burzahom have fashioned varieties of stone and bone implements, some of which are properly worked. Though a vast majority of them are plain, few decorated with incised geometric patterns have also been found (Fig. 5.6). These motifs served any ritual affinity or were a mode of identification is indiscernible.

Few pendants, amulets and perforated objects made of bone, horn, stone, animal tooth, and terracotta were also found at Burazhom. All these objects have been found in every period of occupation of the site. However, these are more or less plain and

bespeak of an egalitarian type of social organization. Indeed, the Neolithic represents a simple social organization termed as “tribal” or “segmentary society” (Sahlins 1960 & 1968; Service 1962; Joshi 2011), and the Burzahom excavations throw significant light on this aspect of human organization.

Kashmir has maintained its art and craftsmanship since time immemorial. However, it is interesting to note that in each critical period of its history, Kashmir experienced a gradual change in the art form, synchronizing with dynastic changes. During this long span of time from the Neolithic to modern times the artists and craftsmen developed their skill in art forms by experimenting and inventing new forms of art as reflected in their textile/clothing, embroidery work, woolens, ritual objects and symbols, decorative articles in bone, wood, metal, fiber, leather, paper, etc.

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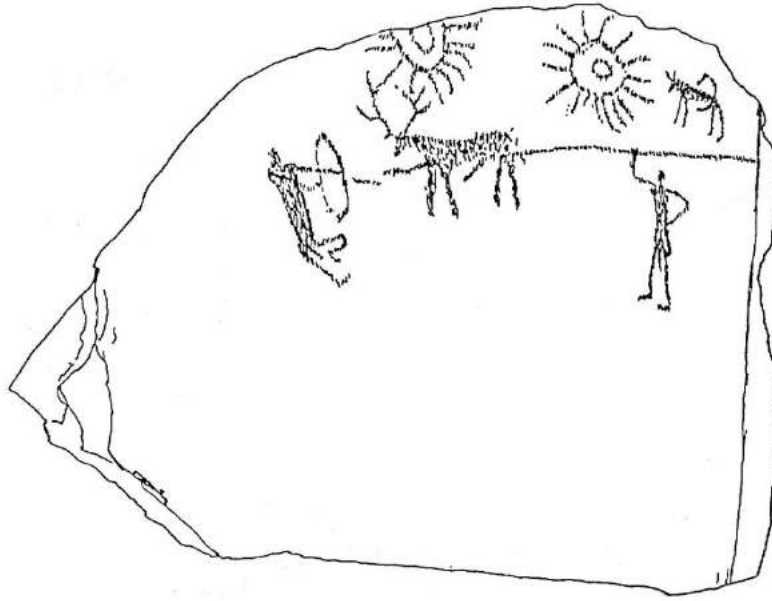


Fig. 5.1 Engraved stone slab with Hunting Scene



Fig. 5.1a Engraved Stone Slab with Hunting Scene



Fig. 5.2 Engraved Stone Slab

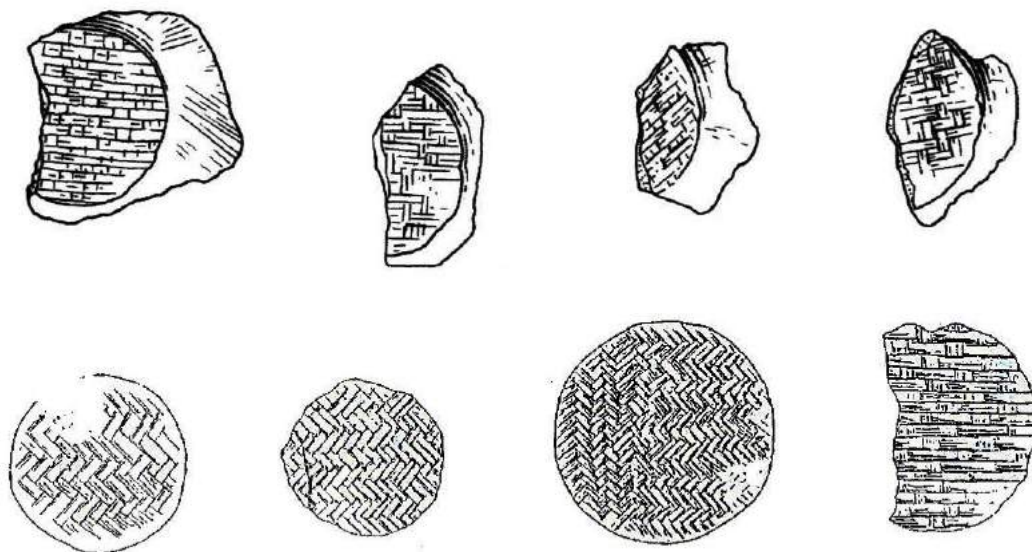


Fig. 5.3 Mat impressions on the bases of the pottery

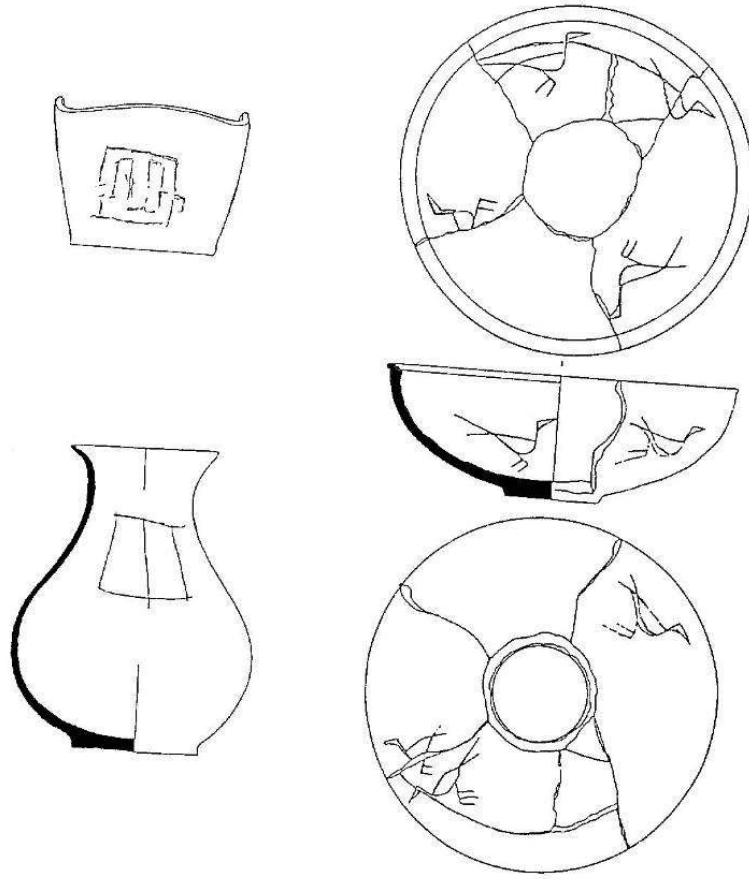


Fig. 5.4 Graffiti on pots

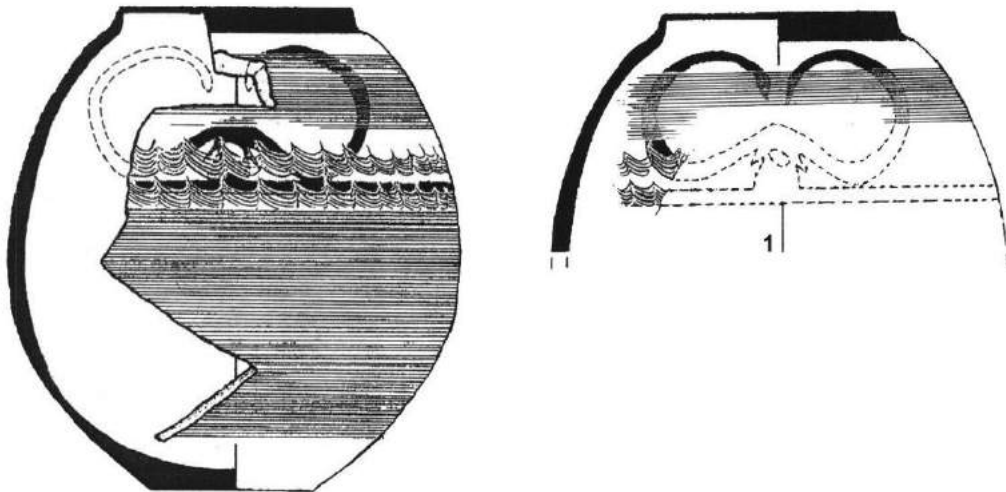


Fig. 5.5 Painted pot resembles the pre-Harappan Kot-Diji fabric



Fig. 5.6: Geometrical patterns on bone tools



Fig. 5.7: Pendants and perforated objects of various materials

6.0 PLANT REMAINS

The flora and fauna of the Kashmir Valley form the natural resources, which were used by early settlers at Burzahom in different ways and to different degrees in the evolution of food gathering to food producing stages. It offered natural varieties both animals and plants including forest products in appropriate conditions in obtaining food stuffs. Indeed there has been a harmonious blending of both physical and cultural environment at Burzahom since early phase of Neolithic settlement.

The subsistence economy of the people of Kashmir during the Neolithic period seems to be both food gathering and cultivation of plants, as evidenced by the finds of harvesters both in bone and stone, hoe, mace heads, stone querns, flake knives and grain of wheat, barley and lentil at Burzahom. This is further confirmed by the investigation of plant remains from the site by late G.M. Buth, Palaeobotanist, Department of Botany, Kashmir University, Srinagar. Twenty four soil samples from different levels of Neolithic Period were examined and the plant remains so recovered belonged to the ancient crops of wheat, barley and lentil. Some of these were of wild variety, (G.M. Buth and R.N. Kaw 1985: 109-113). It may, however, be mentioned that the presence of some stone querns, pestles and pounders would suggest their use for pounding wild varieties of cereals besides crushing the meat.

In order to grow these grains, neolithic folk of Burzahom may have cleared isolated patches of land for cultivation as the area was surrounded by forests with water bodies and swampy land. Microwear studies on the neolithic stone tools undertaken by R.K. Pant (Pant 1979: 11-17) reveal that most of the stone axes were used for wood cutting, chopping and some were used for dressing wood. Adzes were used for digging earth while flake knives were used for reaping the crops. The existence of dog which was considered as crop guarding animal further puts support to the postulation that the neolithic settlers of Kashmir were conversant with the cultivation of plants. The association of weeds with cereals indicate primitive stage of cereal farming when both wild as well as cultivated plants were used as food or weeds were merely contaminants of the harvested crops.

Scientific investigations of plant remains at Burzahom reveal that wheat was the main crop of neolithic people and belonged to the *Triticum aestivum* and *Triticum sphaerococcum* varieties, both of which are cultivated forms of wheat. Cultivated wheat forms are classified into three groups: diploid, tetraploid and hexaploid, based on the number of chromosomes present in each type (Buth and Kaw 1985: 109-113, Lone, et al, 1993: 204-207), wherein *einkorn* wheat is of diploid, emmer, macaroni and rivetare of tetraploid and spelt, club wheat and bread wheat are of hexaploid group. Of these, diploid and tetraploid grew as a result of a genetic interaction between wild varieties of

wheat and wild grass of the same genetic makeup. On the other hand hexaploid bread wheat species *T. aestivum* and *T. compactum* developed through mutational changes from tetraploid emmer, while the other species of hexaploid wheat, *T. spaeococcum*, is said to be a derivatives of *T. aestivum* and wild grass *Aegilops*. (Farooq A. Lone, et al, 1993: 120). The hexaploid wheat *T. aestivum* and *T. compactum* is recorded in Kashmir as late as 3000 B.C. and was also grown in West Asia around 5500 B.C.

The other hexaploid wheat, *T. spaeococcum* was not reported from West Asia at the time it is grown in Kashmir. As it developed from *T. aestivum* and *Aegilops* grass, which grows in the wild in Kashmir, might have originated in Kashmir earlier than in any other centre around. Before it is found in Kashmir, it was viewed that it could have originated in north-west Indian sub-continent in the Harappan context. (. Lone, et al, 1993:12).

Barley, too is a main crop grown in Kashmir during Neolithic period after wheat. Barley grains identified as *Hordeum Vulgare* and its sub specie *H. vulgare linnvar hexastrichum* were found at Burzahom. It is a cultivated variety. Cultivated barley originated from the wild variety of self pollinating rowed variety *H. spontaneum* giving rise to cultivated *H. disticum* and six rows *H. tetrastichum* and *H. vulgare* variety *hexastrichum*. (Lone, et al, 1bid:125). The origin of barley, like that of wheat is west-Asia, where it grew and developed during 7000 BC. The earliest presence of six rowed *H. Vulgare* barley in found is in the neolithic levels & Mehargarh during 6000-5000 BC and subsequently it was found in many other places in the north-west.

The *H. vulgare* variety barley is found in Kashmir in 3000 BC, it can be presumed that the seeds of this variety reached here from west Asia. Besides, husks and impressions of barley grains were also recorded from plastered floors and mud bricks during excavations at Burzahom.

Two types of pulses are known from the neolithic levels of Kashmir. These are lentil (*masur*) and pea. Lentils, first grown in the beginning of 3000 BC at Burzahom are *Lens culinaris* and *Lens exculant* at Gufkral. Both these cultivated varieties have stemmed from the wild *Lens nigrican*. The archaeological evidence have indicated that both the wild lentil and cultivated lentil was first found in West Asia and it can be said that the origin of the cultivated lentil was West Asia during 5000 BC where it has remained associated from the very beginning with the cultivation of wheat and barley (Lone, et al, 1993:137).

The botanical samples studied by experts in the field from various sites i.e. Burzahom, Gufkral, Semthen, Kanispor and other sites conclude that the plant remains consists mainly of cereals of west Asian origin, primarily wheat (*Triticum* sp.), barley

(*Hordeum vulgare*) and pulses are represented by small amount of Lentil (*Lens culinaris*). Fruits include walnut (*Juglans regia*), apricot (*Prunus amygdalus*) and peach (*Prunus persica*). This composition continues much the same during Neolithic Period II with the addition of almond (*Prunus amygdalus*) and grape (*Vitis sp.*). The Megalithic Period III shows decreasing proportion of wheat following the introduction of rice (*Oryza sativa*) and millets (*Panicum miliaceum*).

Rice grown in Kashmir belong to *Oryza sativa* was the cultivated variety of rice. Like rice, millet is also a cultivable crop. Its cultivation is reported from Gufkral along with rice around 2000 BC and has been identified as *Elevisine coraconna*.

Scientific study of plant remains from Gufkral undertaken by Kajale indicated that the agriculture activity in Kashmir during the Aceramic. Period I, consisted of wheat, barley, lentil and pea (IAR A Review 1981-1982: 19-25, Sharma 2013:132). The plant remains recovered from Kanisapur and their investigation undertaken by (Pokharia et al 2017: 27 p 477) found barley with small number of compact *T. aestivum*/durum wheat and three emmer wheat (*T. dicoccum*) grains. Lentil also represent as pulse, possibly indicating a higher dependence on non-animal protein. The plant remains from Kanisapur, have been interpreted as being adopted from the areas & sub Himalayan region adjacent to Kashmir by hunter gatherer population (The plant remains from the site Semthan in Anantnag district (1978-1980) reflect a Megalithic cereal assemblage similar to Gufkral, with the addition of small amount of mung bean (*Vigna radiata*).

Wheat and barley grown in Kashmir valley even today are sown during the winter and harvested in spring, while in the lower Indus valley of Ladakh, wheat is a Kharif crop, sown in May and harvested in August. The comparison between the Neolithic botanical assemblage at Kanishpur and later dated deposits from Burzahom (Lone et al 1993) and Gufkral (Sharma 2013) indicate a shift away from winter crops to bi-seasonal cereal farming including the introduction of summer rice and millet from around 1400 BC (Lone et al 1993). Based on the shift from winter wheat only at Neolithic Kanisapur to possible mixed farming of winter and spring wheat at Burzahom and Gufkral, it may be presumed that Kashmir valley served as of staging post for the dispersal of *T. spaeococcum* to the higher altitude of Central Asia and the Tibetan plateau, where nomadic hunting and agro-pastoral groups may have been able to incorporate short season spring crops suitable to local environmental constraints into their patterns of seasonal movements and cultivation (Spengler 2015: 215-253) Guedes 2015: 1498-1510.

The above details on plant remains are based on the research conducted on botanical samples from Burzahom by G.M. Buth, Farooq A. Lone and Maqsooda Khan.

Gufkral plant remains were studied by M.D. Kajale of Deccan College Pune. Plants remains from Kanispur were studied by Anil, K. Pokharia from Birbal Sahini Institute of Paleosciences (BSIPS) Lucknow.

The development in agricultural crops described above may have decreased the dependence on hunting and food-gathering in the Kashmir valley. In order to supplement food requirement during the long winter season in the valley, the Neolithic folk of Kashmir, grew various types of fruits such as apricot, walnut, almond, peach, cherry and grapes etc as some of these provide dried edible seeds in the winter months which are rich in calories and vitamins. Apart from this, the Neolithic folk of Kashmir were not only dependent on plant food alone, but also depended on hunting of wild animals and domestication of animals to meet his calorie requirements and balanced diet too.

The most common trees grown in the forest of the Kashmir valley are deodar, walnut, pine, willow and birch. Burzahom in local Kashmiri language means home or place of birch. Birch was available during the Neolithic times which are proved by the finding of burnt birch during excavation. Birch (*Betula utilis*) is a moderate sized deciduous tree which is grown in Himalayas between 3000-4500 meters. The nearest source of birch from Burzahom was the Mahadev tirath 25 km east of Burzahom. It is a very ideal roofing material and effective during snow. Burzahom seems to be a main supply centre of birch to other places in the valley during Neolithic times or early Neolithic period. The other trees of conifer variety like pine, cedar, fir and sprue were utilized for house building and elms were used as fuel or fire wood. Pollen diagrams constructed from the Harwan deposits near to Burzahom have furnished evidence for a three- stage disturbance of natural vegetation as shown by the decline and appearance of pine forests. The clearance of these at one stage is thought to be related to the farming experiments of the Neolithic settlers in the valley. (Sharif Thapar 1992:128). It may be said here that the decline in number of pine forests in the valley was not due to environmental or climatic effect but due to deforestation by Neolithic folk for growth of the cereal plants in forest lands too.

Palaeobotanical studies indicate that both the cold and warm living plants coexisted around 3000 BC. Remains of Himalayans blue pine, deodar, elm, birch, plane horse chestnut etc. were found from the Neolithic levels at Burzahom (Lone et al 1988: 165-168). Most of these plants still form part of the vegetation cover of the valley. Studies carried on the palaeoenvironmental and palaeoecology of Kashmir have shown that the environment of the period was, by and large, as good as that exists now (Rekha Dodia et al. 1984: 569-78). The present day, vegetation of Kashmir can be divided into three zones. Zone I (1500-2000m) plants are popular, walnut, and elm having broad

leaves and deodar, and blue pine. In Zone II (2200-3200m) conifers totally outnumbered the broad leaved plants though elm is present upto 2700m. The main conifers are blue pine, fir spruce and yew. Zone III (above 3000m) is the alpine zone; vegetation begins here with birch. This zone is also associated with meadows covered with temperate grasses (D.P. Agrawal 1992:126). However, the most common tree species found in Kashmir are Deodara (*Cedrus deodara*), Himalayan blue pine (*Pinus Wallichiana*), Himalayan Silver Fir (*Abies Webbiana*), Yew (*Texus baccata*), Elm (*Culmus Wallichiana*), Walnut (*Juglans regia*), popular (*Populus nigra*), white poplar (*Populus alba*), willow (*Salix tetrasperma*), Birch o (*Betula utilis*), Plane or Chinara (*Platanus orientalis*), Juniper, Horse chestnut (*Aesculus*), oak (*Quercus*) and Cat Tail (*Typha*) (Moonis Raza – 1978 table XLVI).

Thus during the successive stages in the phyto-geographical evolution, following the upper Pliocene to Lower Pleistocene epochs, the vegetation cover of the valley was transformed from subtropical oak laural community to the present pine-deodar-fir-cherry community on account of climatic alterations accompanied by changes in organic movement (. Bandy, 2009: 33). However, the present vegetation cover has not changed to any extent during the last five thousand years except changes brought by man for his comfort.

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7.0 Burial Practices

Burzahom is the northernmost excavated Neolithic site of India. In the northern Neolithic region of Indian sub continent, Burzahom occupies unique position in revealing human as well as animal burials, dating back to the beginning of 3rd millennium B.C. It is also apparent that because of the contacts with Harappans and other regions in the north, deliberate burial practices have started in Kashmir. Burzahom burials assume special importance in the Neolithic context, because, these are from stratified chronological horizon. During Neolithic and Megalithic periods, circular shaped grave pits were dug for the disposal of the dead. These pits were narrow at top and wide at the bottom. The burials were found in the habitation area, mostly below the floors of dwellings at the depth ranging from 1.25 m to 3.25 m. A human Skelton along with a stone bowl was found at the depth of 3.22 m on the floor of one of the grave pit(formerly dwelling pits) clustered along the periphery of the mound. According to S.S. Saar, one of the team members of the Burzahom excavation, the cluster of the grave pits formerly identified as dwelling pits found in the periphery of mound suggests an arrangement of cemetery of in Period I. (Saar 1992: 12)

The two seasons of excavations in 1962 and 1963-64 at Burzahom had revealed ten human and eleven animal burials, all located in the habitation area. All burials belonged to Neolithic and Megalithic periods. Period IV, the early historical period did not yield any burials. This may be due to the reason that the excavation was confined only to a very limited area of the habitation zone. At Burzahom, both human and animals were buried inside carefully dug circular grave pits under the dwelling floor, which were later on plastered. They were found to be in articulated condition. It is interesting to note that in both burials (human and animal) the Skeletons were buried in north-south orientation with skull towards north. Human were found burial in individual burial, but in case of animal, both individual and collective burial with other animals or humans or both were practiced. In case of animals from Neolithic period, it was observed that the bones were treated with red-ochre like those of the humans.

The human and animal burials unearthed from Burzahom are limited in number. Despite their bad state of preservation, the material has good potential for further archaeological and anthropological research dealing with cultural and ethnic affinities of contemporary populations in the region and also for understanding the disposal of the dead from the Neolithic period onwards.

Human Skeletal Remains

Burzahom excavations have provided evidence relating to the human burial practices during Neolithic and Megalithic period. Anthropological Survey of India deputed anthropologists namely Late D. K. Sen (Fig. 7.1.b) and Late Pabitra Gupta (Fig.

7.1.a) to visit the site for detail examination and study of human skeletal finds unearthed from the northern Neolithic site at Burzahom in Kashmir.

At Burzahom, ten human burials were exposed (five males, three females, one juvenile and one child). Out of them, seven belonged to Period II of the Neolithic period and other three were from the Period III- Megalithic period. All the burials were in the habitation area itself just below the floor of the huts at a considerable depth varying from 1.25 m. to 3.25 m. from the surface. They were placed in the grave pit either in crouching position (no. 2, 3, 7, and 8) or in extended position. Most of the skeletons were oriented north-east to south-west or north-west to south-west with skull generally towards north. Except skeleton nos. 1 & 6 others were buried in circular pits with their inner sides plastered with chunam. The burials showed both primary and secondary internments. Grave goods were very scanty or totally absent. There were five miniature pots with skeleton no. 1, a barrel shaped paste bead with skeleton no. 5, a circular soapstone disc pendant with three linear perforations with skeleton no. 7, five carnelian beads in the neck portion of skeleton no. 8 and a stone bowl with skeleton no 10. The skeletal remains of dog, antler, sheep and goat were occasionally deposited with the humans at times at times at different levels of the pits.

The peculiar practice of burying pet animals or their bones with the human body was noticed. In one case skull of a dog is buried with human body (perhaps the owner). In another case bones of a goat have been found. In the third case, antlers have been found along with the body. Distribution of the Skeletons according to grave pit area is shown in table form as given below. The numbering of grave pit area and skeletons as given by the excavators in the field are retained

Table: Distribution of Human Skeletal Remains

Skeletal No.	Period	Area	Location	Nature of Burial	Orientation	Depth	Age/sex	Grave goods
Skl. 2	Neolithic Period II	BZH-1 (1962)	layer 7	Primary articulated child, position	West-East	2. 77 m	5 years child	-
Skl.4	Neolithic Period II	BZH-3 (1962)	Pit cut in layer 5 s.b. 4b	Secondary, disarticulated, bones treated with red ochre	East- West	1.68m	11-15 years juvenile	-
Skl. 5	Neolithic Period II	BZH-3 (1962)	Pit cut in 6, s.b. 5	Secondary, partially articulated, treated with red ochre	S.E.-N.W.	1.83 m	51-55 Male	An earthen pot & a small barrel

								shaped paste bead
Skl. 6	Neolithic Period II	BZH- jeep track	Oval pit	Partially articulated	North- South	1.14 m	51- 55 Male	Animal bones
Skl. 8	Neolithic Period II	BZH-1 (1964)	Pit cut in 9 s.b. pit 3	Primary articulated, crouching	S.E.-N.W.	3.15m	31-35 Female	Five Carnelian barrel beads
Skl. 9	Neolithic Period II	BZH-3 (1964)	Inside dwelling pit, layer 7, grave pit s.b. 6	Primary articulated ribs charred, su-pine position	S.W. –N.E.	3.02 m	51-55 Male	-
Skl.10	Neolithic Period II	BZH-3 (1964)		Primary articulated	N.W. –S.W.	3.22 m	26-30 Male	Circular stone bowl
Skl. 1	Megalithic	BZH-1 (1962)	Pit cut in 5, s.b. 4a	Primary articulated flexed	West- East	1.50m	46-50 Male	Five earthen goblets
Skl. 3	Megalithic	BZH-1 (1962)	Pit cut in 3a, s.b. 3	Primary articulated crouching	Skull facing S.E.	1.775m	31-35 Female	Skull of a dog
Skl. 7	Megalithic	BZH-3 (1962)	Pit cut in 5 s.b. 4	Primary articulated crouching, bones treated with red ochre, skull having trephined bones	N.E.- S.W.	2.235m	26-30 Female	Antler at 1.50 m, Animal lower jaw and antler at 2.13- 1. 35 m, Soap stone circular disc.

Seven human burials were excavated which belongs to the Period II. Among them five were primary and two were secondary burials. These burials were made in oval shaped pits which were dug in the habitation area. These pits were plastered with “chunam”. The size of the pits varied with having diameter from 1.17 m to 2.30 m, but in case of child the pit was much smaller. The skeletons were placed in the pit either in crouching or extended position. In some cases animal bones were deposited with the human skeletal remains. The pits were filled with ash mixed with stone pieces and pot

sherds. A distinctive feature of the human burials was the use of red ochre on the bones as preservative. Red ochre has been applied after the decomposition of flesh. Probably skeletons were re-exposed to sprinkle them with red ochre.

During the excavation, only three human burials belonging to the megalithic period exposed. The occurrence of oval chunam lined pits and the crouching position of the skeleton in one case indicate the continuation of the burial customs prevalent in Period II. The practice of applying red ochre on bones was totally disappeared. In the later period the custom of burying in chunam lined oval pits was abandoned. Burying of the body in east-west orientation was preferred. Filling of the pit comprised of the pit material mixed with ash, stone pieces and potsherds.

Human burial exposed from Burzahom excavations are described below:-

Skeleton No. 1 (Fig. 7.1.1)

The most striking human burial is found in the eastern extension of BZH-1(1962) of the site, close to the eastern lateral border of the huge megalith complex which also has the biggest menhir at Burzahom. The stratigraphical sequence evidently indicates that the burial is not directly related to the installation of the menhir rather the grave-pit was dug earlier than the pit for the megalith.

Here, the grave pit has been cut through layers 4, 5, 6 and 7. Layer 7 is actually the thick yellowish floor deposit which sealed the grave pit of the child (skeleton no. 2) lying below the feet of skeleton no. 1. The pit has been cut in a peculiar fashion and accordingly the skeleton has been placed. The skeleton was kept in such a fashion that it gives an impression of a man sleeping at ease on an easy chair with his head hanging on his right shoulders. The pit is of conical shape on the section and on the plan it gradually widens from the shoulder region of the skeleton towards the legs. It is widest near the knees i.e. 4'-4" (1.33 m.). The grave pit is narrowest near the pectoral girdle being 1'-6" (45.7 cm.) only. Actually at this point the pit has narrowed down to such an extent that its edges are just touching the right humerus on one side and left ribs on the other. It is necessary to mention here that the top of the grave pit is at a depth of 3'-8" (1.21 m.) from the present surface level while the top of the skull is at a depth of 5'-6.5" (1.68 m). The pelvis region is at a depth of 7' (2.14 m) and the left foot is at a depth of 7'-11" (2.42 m). Thus, the skeleton is in an articulated condition lying on its back. The top of layer 7 on which the back of the skeleton is resting consists of burnt floor.

The skeleton is lying in the east-west orientation with its skull towards west facing south east and the left leg towards east. The right leg is bent at the knee and the lower ends of right tibia and fibula are just below the condylar region of the left femur. On the left side i.e., in the northern corner, the pit has been lined by big stone pieces. The left feet are between the two big stones lying just over the child's (skeleton No. 2) skull.

Five miniature earthen goblets have been found inside the grave pit associated with the skeleton. Three of the pots are put in a triangular fashion on the right of the left leg while two are on the left side of the same leg.

The Skeleton is in articulated condition lying on its back. This is the best preserved skull of the Burzahom findings. The skull is complete with mandible and has some damage on nasal and right orbital region. The occipital region and the right parietal bone of the skull are in the in the western section facing east. The skull is slightly bent towards right, with the chin resting on the right shoulder.

Frontal bone is in good condition except for a crack running parallel to the coronal suture. The frontal region is broad, giving a fronto-parietal index of 74.5. The coronal suture is complete and does not show any remarkable sign of fusion. Frontal bone is curved and the forehead is receding. Eye-brow ridges are prominent. Upper margins of the orbits of the eyes are not sharp. Glabella is prominent. The cranial contour in normal aterlis shows that glebella and superciliary eminence were made more prominent by the well-defined ophryonic groove. The forehead is receding and turns back into a well-arched vertex which slopes evenly down to moderately prominent occiput.

Fortunately the nasal bone is intact. Superciliary arch is prominent and so also the frontal tubercle. Zygomatic bones on both the sides are intact. Though the left zygomatic process is complete, the zygomatic bone is displaced from the maxilla due to break between the junction of upper process of maxilla and the frontal bone and at the point of infraorbital foramen. The right zygomatic bone has also got pressed inside the orbit. The supra-orbital ridges on the frontal bone are well developed. Frontal process of right maxille is missing. Anterior nasal spine is present. All the eight teeth of the left maxilla are intact including the left maxillary tuberosity. The orbits are asymmetrical, squarish in form in the right and somewhat roundish in the left. The orbital axis is directed obliquely downwards. When viewed from top, the skull is *ovoides* in shape. The nasal bridge is concave with medium depression at the nasion. Above the mastoid there is a prominent supra mastoidal crest which curves upward from porionic region. The palate is paraboloid in shape, short, medium deep and somewhat narrow anteriorly. A palatine torus is present along the median line of the palate.

Left parietal bone is intact and in good state of preservation. It has also developed a crack running throughout the length of the bone, roughly parallel to the sagittal suture.

Left temporal bone is intact. Squamous. part, mastoid portion, zygomatic process, parietal notch, articular tubercle, mandibular fossa, supramental triangle, and the mastoid process, all are intact and in good condition. Mastoid process is quite

prominent. Greater wing of sphenoid bone on the left side is present. Left orbital plate of ethmoid is broken near the greater wing of sphenoid bone. The nose is of moderate length and falls in mesorrhine class. The anterior nasal spine is strong and inferior border of nasal aperture is *oxykraspedotic*.

Mandible is more or less intact with the chin resting on the acromial end of the right clavicle. Mandible is broken into two halves. Head and coronoid process are intact in the left half of the mandible which is exposed. Angle, mental foramen and mental protuberance, all are intact. All the eight teeth of the left side and two incisors of the right side are visible in articulated condition. Jaw bone is rough with well developed marking of muscular attachments. The ascending branch of the ramus is high and rather narrow. Sigmoid notch is deep and apex of the coronoid process tends to be sharp. The corpus is moderate in bulk and symphyseal height is high (33mm). The chin is a little wide and strongly prominent with prominent mental tubercle. The skeleton is that of a male aged 46-50 years.

Skeleton No.2 (Fig. 7.1.2)

A skeleton of a child is found in a grave pit below the left foot of the skeleton no. 1 in the area BZH-1(1962). Top of the grave pit is at a depth of 9'-1" (2.76 m) from the present ground level. The thick yellowish floor sealing the grave –pit i.e. layer 7 has been distributed on the western side by the grave pit of skeleton no 1.

The skeleton was detected through the top of its skull which got exposed while cleaning the two big stone pieces lying below the left foot of skeleton no.1.

The maximum available length of the child's grave pit is 0.71 m east to west and maximum breadth from north to south is 0.75 m. The filling of the pit consists of black clay with three stone pieces placed on its western border lining the pit.

The skeleton is lying in foetal position from west to east with the skull towards west facing north. Hands and feet have been folded to a considerable extent and have been placed in such a way that the right hand is lying over the left foot and the left hand below the left foot. Maximum available length of the skeleton in-situ condition from the top of the skull to the pubic region is 0.40 m.

The skull is resting on its left side in an inclined position. The vault of the skull is intact but the face along with the mandible is badly damaged. Nasal bone is completely missing. Frontal, temporal, parietal and occipital bones are intact. The skull bones are very smooth and thin. Except for a part of right coronal suture and right temporal suture other sutures are not visible due to the stone lying above the skull. A part of the frontal bone just above the plerion point is missing. Fore-head is narrow and smooth. Supra-orbital notch along with the upper borders of both the eye-orbits are intact. Right

mastoid process and external acoustic meatus are in good condition. The Greater wing of right sphenoid as well as the squamous temporal are in a good state of preservation. Frontal process of maxilla of both the sides is completely missing. Zygomatic bone with zygomatic process of right side is absent. Nasal spine is missing. Left zygomatic bone is present. Only a part of left maxilla is present with two milk teeth. Left infra-orbital foramen is present.

The margin of right orbit below supra-orbital foramen to frontozygomatic suture is missing. Glabella is intact.

All the cranial sutures are open, forehead is straight with a trace of metopic suture. The skull is well arched with a vertex far behind bregma and occipital is slightly protruding. Occipital contour is with prominent parietal eminences and flat temporal walls converge towards the narrow base. A noteworthy feature is the presence of bipartite wormian bone.

Only the right half of the mandible is exposed. Ramus and the condylar process with the head of mandible are intact, but the coronoid process is slightly damaged at the end. Except for 1st molar all other teeth are missing. Mandible has broken into two pieces at the point of mental protuberance. Mandible shows that all the deciduous teeth have erupted. Only first deciduous molar on each side of the, mandible is found to be present in the socket. On the right half unerupted permanent first molar can be seen. This lies in its crypt immediately behind the deciduous teeth. On the left, there is only a crypt and no permanent first molar is visible, probably it is still in the budding stage. Second permanent molar tooth has erupted but is missing. Mental foramen is present on both sides below the first deciduous molar. Lower border of the corpus is concave.

The skeleton is that of a child of nearly five to six years of age.

Skeleton No. 3 (Fig. 7.1.)

A human skeleton resting on its right side and buried in crouching position was found in a grave pit in the area BZH-1, Vx'-VIIx'. The pit has been cut into layer 3a sealed by layer 3. Top part of the pit is at a depth of 2'-4" (71.1 cm.) from the present surface. Maximum available length of the grave pit at this level is 4'-6" (1.37 m), while the maximum breadth is 1'-8" (50.8 cm.).

Along with the human skeleton probably the skull of a dog was also buried in the same pit at a depth of 2'-2" (66 cm) and was found projecting from the section looking east. Human skeleton is lying at a depth of 3'-6" (1.06 m) from the top of the pit. The dog skull is lying just above the left hip-bone and is in a badly damaged condition. Facial parts are totally missing. Sagittal crest is quite prominent. One canine from the lower jaw is visible. The skull is lying covered with big stone pieces and a considerable

part of it is still inside the section. Pit-filling comprises three distinct deposits. The top deposit consists of black soil mixed with stone pieces. The middle deposit is made up of sediments from the layer 6 and 7 through which the pit has been cut. It is a compact soil mixed with chunam (lime) pieces. The lowest deposit consists of loose ashy material mixed with numerous stone pieces. A clear chunam lining on the northern side of the pit is visible, while the same is not traceable on the southern side. Actually the scalp touches the chunam plastering.

The human skeleton is lying on the north-western side of the pit in the north-west to south-west direction with the skull in the north-west direction facing south and the pelvis towards the south-east.

The skeleton is in a, severely crouched, foetal position measuring just 2'1" (63.5cm) from the crown to the pubic crest. The legs were folded up in that position soon after the person died and was buried.

The skull is resting on its right side facing towards south-east; it is in a badly damaged condition and has broken into several pieces. Frontal, parietal, temporal and occipital regions all have broken into several pieces. Coronal and sagittal sutures are clearly visible and have not at all fused. Maxilla has also broken into several pieces. Left mastoid process is prominent and intact. Left zygomatic process is also more or less intact, except for slight displacement at the suture where it joins the zygomatic bone. Frontal process of maxilla is also broken. Nasal bone is intact but has got separated from the frontal bone and frontal process of maxilla on both the sides. Left orbit is damaged near the supra-orbital-foramen. Right orbit is not visible.

Only two incisors, one canine and one premolar of the left side of the upper jaw are visible. Anterior nasal spine is missing. Left occipital bone is also not visible due to the chunam lining. Squamous part of the left temporal bone is present. Only the left condylar process of the mandible is visible as the rest of the parts are obscured by the left humerus which is passing over the mandible. Condylar process is broken into three pieces. The ascending ramus is rather low (58 mm) and moderately wide (32mm), having shallow sigmoid notch and low blunt coronoid process. The chin is prominent, forms a single round protuberance without mental tubercle. The corpus is moderate. The mandibular angles are slightly everted. The dental row has a shape of small parabolic arch.

Bones of the skull are quite thick and the sutures have not at all fused. Teeth do not show any marked sign of wear and tear. The Skeleton is that of a lady aged 31-35 years.

Skeleton No. 4 (Fig. 7.1.)

This human skeleton is found in a grave pit in BZH-1 between peg nos.XX and XVII. The grave pit has been cut into layer 5 and is sealed by layer 4b. It is situated just near the southern section of the trench. From the present ground level, top of the pit is at a depth of 1.275 m while the skeleton is lying at a depth of 1.68 m and at a depth of 0.50 m from the top of the grave pit.

None of the bones of this skeleton are in proper articulation. Actually, it is a case of typical secondary burial in which various parts of the human skeleton were collected and put inside the pit after the body was exposed in the open atmosphere. All the bones present were treated with red-ochre.

The grave-pit is oval in shape, narrower towards the top and wider towards the bottom. It is filled with ashy deposits mixed with stone pieces. It has a chunam lining all along its inner borders. Maximum length of the pit (east-west) is 3'-10" (1.17 m), while maximum breadth north-south is 83.8 cm at the depth where the skeleton is lying. The skeleton is lying in east-west direction with the skull towards north-east corner of the pit.

Skull along with the mandible is resting on its right side facing south-east. The skull has cracked into numerous fragments. At least twenty-two pieces are available on the exposed side. Frontal bone is quite intact, though broken. Skull has become flattish and due to pressure. Left parietal and temporal bones along with occipital bone have broken into several pieces. Major cracks have developed all along the left side of the coronal suture, sagittal suture and lambdoid suture. Left mastoid process is completely missing. Only the left maxilla is visible and is represented by at least four pieces. Left zygomatic bone is badly damaged and extremely fragile.

Neither the nasal bone nor the eye-orbits are visible. Frontal process of maxilla is also not visible. Three molars, two pre molars, and one canine of the left maxilla are visible. Left mandible is badly damaged. Head of the mandible, coronoid process and the portion above the angle are missing. Most probably the wisdom teeth had also erupted. None of the sutures have fused.

Though the size of the skull is quite big, limb bones are fairly small and delicate. Eruption of all the teeth is complete. Fore-head is narrow. The skeleton seems to be that of an adult female aged below 25 years.

Skeleton No. 5 (Fig. 7.1.)

Remains of a human skeleton treated with red ochre have been found in an egg shaped (longitudinal section) grave-pit in the south-eastern quadrant of Square B.1 in BZH-3 in 1961 excavation. The inner sides of the grave-pit are lined with chunam all around. From the condition of the bones it is apparent that after the decomposition of

the flesh, the skeleton was exposed again and red ochre solution was sprinkled over the remains as preservative.

The grave-pit has been cut into the layer 6 at a depth of 4'-2" (1.27 m) from the present surface and was sealed by layer 5. Bottom of the pit where the skeleton is lying is at a depth of 6'-0" (1.83 m) from surface. Two long and sharp stones inclining towards south east are found at the top of the pit.

The pit is roughly 55.9 cm deep. It cuts through four earlier pits. The quadrant contains as many as eight pits on the plan, all lined by Chunam plaster on their inner sides. The highest point of the skeleton is lying at a depth of 1'-2" (35.6 cm.) from the top of the pit.

The skeleton is lying in north-south direction with the skull towards south-eastern corner. Though it seems to be a case of secondary burial, most of the skeletal parts are in an articulated condition. Both the upper and lower limbs are in a folded condition. All the bones below pelvis region are lying on the natural soil itself and have been treated with red ochre. Red ochre from the exposed side of the skull and right hand has been washed away as these parts were exposed in the year 1961 also. An earthen pot was found in the north eastern corner outside the grave-pit in layer 6. Lot of red ochre is seen on the inner side of the pot which indicate that red ochre solution was kept in it.

The grave pit is more or less circular with a diameter of 1.6 m at the bottom and is narrower at the top. The maximum length of the skeleton in-situ position from the skull vault to the lower extremity of the femur is 4' (1.22 m). Roughly the top of the iliac crest is in the centre of the pit.

The skull is resting on its right side in an extremely damaged condition,, represented by broken parts of the skullcap. Some of the facial bones are completely invisible. Temporal piece has separated from the parietal bone of the left side. Occipital and parietal bones have cracked into several pieces and are extremely fragile. The external occipital protuberance is facing west. Muscular markings at the occipital region are well marked. The skull bones are thick, thickness of the bone at the parietal near bregma is 0.9 mm. complete obliteration of most of the cranial sutures indicate above 50 years of age.

Temporal piece of the left side is not at all present. Eye orbit, nasal bone and the zygomatic process are completely missing. Twelve teeth are lying scattered near the occipital bone and the frontal bone. Mandible is reduced to tiny fragments and hardly anything can be lifted.

Only a piece of right scapula is present. It has cracked into several pieces. Glenoid cavity is in a fairly good condition while both the acromion and coracoid process are

absent. Infra glenoid tubercle is present and rests of the portions below it are missing. The Skeleton belongs to a male aged between 50-55 years.

Skeleton No. 6 (Fig. 7.1.)

Remains of a human skeleton along with some animal bones were exposed in a narrow trench cut along the road track in the eastern section of the track. The grave pit containing proximal end of right femur and a portion of right hip bone was spotted in the section, while constructing an approach road to the site. Later on a narrow trench was cut at the place for exposing the skeleton. . The pit is 73 cm deep and roughly oval in shape, though its western edge is damaged due to the road cutting. A Maximum breadth north to south is 4'-9" (1.45 m). The skeletal remains are lying in the western fringe of the pit in north-south direction at a depth of 40.6 cm from the top of the pit. The pit is filled with numerous stone pieces and ashy material.

The position of various parts gives an impression that the whole body was not put in an articulated condition. Only the vertebral column, pelvis, femurii and left tibia and fibula are in an articulated condition, while the rest of the parts are lying scattered mostly concentrated in the western fringe of the pit.

The skull is lying upside-down, just resting on its vault, facing towards south-eastern corner. It is lying next to the left tibia near the southern section of the pit. It is highly unlikely that it might have got disturbed from its original position. The possibility is that the skull and other parts lying scattered might have been severed before these were deposited in this pit. It seems that the skull has been put purposely in Norma-basis position.

The skull though quite intact has badly fractured at many places. Foremen magnum is damaged. Left occipital condyle is intact and the right one is damaged. Parietal bone is separated from the occipital piece at the lambdoid suture. Left half of the parietal bone is missing. Left mastoid process is quite intact while the right one is badly damaged. Styloid process, pharyngeal tubercle and posterior nasal spine all are missing. Zygomatic bones along with the zygomatic process of both the sides are intact, though the left zygomatic process has broken into three pieces. Palatine process of maxilla is represented by several small fragments and neither the median palatine suture nor the palato-maxillary suture is visible. All the sixteen teeth of the upper jaw are intact. Left incisor is slightly damaged. Most of these are much worn out.

The vertical contour is wide ovoid with marked parietal eminence and zygomatic arches projecting laterally to the cranial contour. The cranial index is in the border of dolico and mesocranic. Frontal eminence is not noticeable. In the lateral view the forehead is very low and highly receding and passes smoothly into low arched vertex up to the highest point at the bregma and then gradually slopes down into rounded occiput.

Above the large size mastoid there is a strong supra-mastoid ridge. The posterior root of the zygoma passes backwards and its upper border becomes continuous with the supra mastoid ridge. The external auditory meatus is oval in shape.

Left temporal is pressed inside. Anterior aspect of the skull is more or less intact though fractured into several pieces. Both the eye-orbits are present. Upper ridge of the right orbit is broken at the super-orbital foramen and the outer piece is pressed inside the orbit. Glabella region is present but both nasion and nasal bone are missing. Basion point is fairly intact. Frontal process of maxilla is present with the infraorbital foramen intact. All the bones are very fragile. Lower jaw is totally missing.

Skull walls are quite thick. Glabella and mastoid process are prominent. The orbits are mesoconchic, low rectangular in shape. Upper margins of the orbits are not so sharp. Skull vault is arched and facial bones are rough. The skull seems to be that of a male aged between 30 to 45 years. Wisdom teeth have erupted and cusps of the molars are worn out. Sagittal suture is markedly fused and so are the coronal suture. Temporal and lambdoid sutures have not fused. The face is short and broad giving an upper facial index of 49.3. The malar bones are massive and bizygomatic breadth is very wide (150mm). The nasal height is short and aperture very wide, being hyper chamaerrhine (68.0mm). The mandibular fossa is broad and medium deep. All the maxillary teeth have erupted and show high degree of attrition.

The advanced obliteration of the cranial sutures and the wear of teeth indicate that the man was above 50 years. The preserved diagnostic characters on the skull, great robusticity of the postcranial skeleton and development of the muscular relief point to the male sex.

Skeleton No. 7 (Fig. 7.1.)

A grave pit is found in the north western sector of quadrant C. 8 in the area BZH-3 (1962). The pit was cut in the floor (chunam) level termed as layer (5) and sealed by layer (4). The pit filling consists of ashy material and stone pieces. It has been plastered by 'chunam' on all its inner sides and is narrower at the top and wider towards the bottom. After scooping out the filling of the pit, a badly damaged skull piece and pieces of an antler were found at a depth 1.85 m below the present surface. A fragment of animal lower jaw treated with red-ochre was also found near the skull. After removing the above mentioned bones, the pit was further excavated for checking details of the burial. More antler pieces were recovered at a depth of 2.14 m.

Underneath the above antlers, a human skeleton (length of the skeleton from skull vault to the foot (left) = 89 cm) buried in a crouching position was found at the depth of 2.24 m from the surface. Major part of the outline of the pit could be traced on

the plan except for a small portion which is still inside the western section. Approximate diameter of the pit at the level where the human skeleton is lying is 1.22 m.

The skeleton is lying in the north-east to south-west direction with the skull towards the former and pelvis towards the latter direction. It is facing west. Legs and hands have been folded to a considerable extent. All the parts are in an extremely fragile condition and some of these have decomposed so much that only their impression on the soil is left.

All the parts available are brick red in colour as these have been treated with red-ochre after the flesh was removed. It is apparent that the skeleton may have been re-exposed again after the decomposition of the flesh and red-ochre solution was applied to the bones. Undisturbed condition of the skeletal parts suggests that the bones were not lifted but red-ochre solution was sprinkled in large quantities as preservatives.

Two pieces of animal bones (extremities of long bones) are also lying near the pelvis along with one soap-stone circular disc bead with three perforations in a straight line.

The skull is resting on its right side facing towards west. Only the left normo-lateralis portion is visible in-situ condition. Due to the pressure the skull is badly crushed and has cracked at numerous places. Almost all the sutures are wide open and do not show any sign of advanced ossification.

Skull has been painted with red-ochre and on the vault several circular holes have been made (trepanned) before it was buried. In normal-lateralis position on the left parietal bone between bregma and lambda there are seven finished and four unfinished holes. It seems that the holes might have been made with some sharp circular instrument (bone or stone) when the bone was still fresh. The holes apparently look like trephination. The holes are perfectly circular and all are nearly 0.25" (.63 cm.) in diameter.

Occipital bone is partly visible and has broken into at least four major pieces on the left side. Lambda is intact. Left lambdoid and coronal sutures are intact. One circular sutural bone is present between the sphenoid angle of the parietal bone and the greater wing of the sphenoid. The cranial sutures are simple and open. The obliteration had begun only in the region of the obelion. The glabella is medium, superciliary arches tended to be slightly developed mesially, mastoid is small, muscular attachments are weak giving a gracile appearance to the skull. The skull is long and narrow, rather longish, ovoid in cranial contour and cryptozygous. The forehead is low, slightly receding with a distinct post glabellar depression.

Left parietal bone has cracked into three major pieces. One crack is running right from the sagittal to the temporal suture. Greater wing of left sphenoid is totally missing and a hole has been pierced just near the pterion point. The left temporal bone is more or less intact along with the zygomatic process. Mastoid process, mastoid portion and parietal notch, all are intact. Mastoid process is prominent but not much pronounced. Pterion point, mandibular fossa and suprameatal triangle are intact. Left zygomatic bone is in an articulated condition.

Frontal bone is broken just from the centre and gives the false impression of sagittal suture extending further to the glabella point. Left half of the frontal bone is visible and has collapsed. It has broken along the supraciliary arch. Left supraorbital notch and maxilla are intact. Frontal process of maxilla, left nasal bone and nasal spine are present. Left eye-orbit is present but due to the displacement of maxilla downwards, it is incomplete. All the teeth of the left side are present with only the 3rd molar disturbed from its socket. Cusps of the teeth have not worn out to any remarkable degree. The face is of medium height and very narrow, the superior facial index being hyper lepten. The nasion is only slightly depressed at the root. And the inferior border of the pyriform aperture is oxycraspedotic. The skull is hyper dolichocranic and hypsicranic.

Only the left mandible is visible which is represented by small fragments. It is completely pressed and hardly anything worth study can be lifted. Second and third molar, two premolars, canine and two incisors of the left side are visible. Cusps are not worn out.

All the skull bones are extremely fragile. Mastoid process is not markedly prominent, but upper margin of the eye orbit is sharp. On the left parietal bone of the skull, there are six complete circular holes. These apparently look like trepanning. The skeleton belongs to that of a female aged between 25 to 30 years.

Skeleton No. 8 (Fig. 7.1.)

A human burial (of an adult female aged above 30 years) has been found in the grave pit of BZH-1. The pit is nearly circular and has been cut in layer 9 sealed by pit-3. The top of the grave pit is at a depth of 2.84 m from the present surface level and the skeleton is lying at a depth of 3.15 m. Approximate diameter of the grave pit is 1.22 m.

The skeleton is lying in a crouching position in south-east and north-west direction. The skull is towards south-east while the feet are towards north-west. Phalanges of the hand are touching the south-eastern edge, while phalanges of the right foot are touching the north-western edge of the grave pit.

Maximum length of the skeleton in-situ condition is 1.22 m. Filling of the pit consists of disintegrated mud and yellowish floor material. The pit is wider towards the bottom than the top.

The skeleton is lying on its left side and almost all the parts are in an articulated condition. Five carnelian barrel shaped beads have been found in the neck of the skeleton. All the beads are of different size. Probably these beads formed a necklace which was worn by the deceased at the time of death.

The skull is lying in its norma-lateralis position, resting on its left side. The facial bones and the mandibles are badly damaged.

The cranium is incomplete. The skull is rather gracile in structure, having medium muscular impressions at the nuchal plane of the occiput. Mastoid are medium in size and supramastoid crest moderately prominent. The right orbit is small and squarish in form and superior orbital margine is sharp. The nasal bones are small, narrow, constricted and nasion is slightly depressed. None of the sutures show any sign of fusion. Skull vault is curved and forehead is prominent. The lower edge of nasal bone is sharp with the weak anterior nasal spine. Norma verticalis is long ovoid with slightly prominent parietal eminences. Occipital, temporal, parietal and frontal bones are more or less intact with several cracks particularly in the frontal bone. Behind the bregma there is a postcoronal sulcus. On the sagittal suture in the region of obelion there is also a slight oblonic depression, which extends little symmetrically on both sides of the sagittal suture. The occiput is protruding. Lambdoid ossicles are present on both sides of the lambdoid suture. The palate is short, broad and moderately deep. Mandibular fossae are moderately deep but not too large. External occipital protuberance is intact. Foramen magnum is hidden. Mastoid portion of right temporal and right styloid process are missing, while the right mastoid process and external acoustic meatus are intact. Right zygomatic bone is present but the zygomatic arch is missing except for a portion of zygomatic process up to the articular tubercle.

Greater wing of right sphenoid bone along with the anterior inferior angle of right sphenoid is missing. All the bones inside the right orbit are absent. Right supra orbital foramen is present. Nasal bone and frontal process of right maxilla are present. Maxilla below the region of nasal bone is completely broken and except for the portion containing teeth, other portions are missing. Anterior nasal spine is absent. Two incisors, canine, two premolars and one molar of the right side of the maxilla are intact.

Only the right half of mandible is visible and has broken near the mental tubercle. The mandible is of moderate size. The chin is prominent and somewhat rounded with a very prominent mental protuberance. Mental foramen is intact. Only three molars are present while the other teeth are displaced from their sockets and are not visible.

All parts of the above skull are extremely fragile. Upper edges of the orbits are quite sharp and facial bones are smoother. The skeleton belongs to that of an adult female aged between 30-35 years.

Skeleton No. 9 (Fig. 7.1.)

This complete extended human burial has been found in the western extension of quadrant A1-A2 in BZH-3 (1964). The circular grave pit is located inside a huge dwelling pit on the northern side. Diameter of the grave pit is roughly 99.1 cm to 1.01 m. The pit is dome shaped, widest at the bottom and narrowest at the top. It has been cut in the filling of the dwelling pit which consists of yellowish earth (floor material) mixed with a few stone pieces. Working level of the grave pit lies in layer 6.

Maximum depth of the grave pit at the centre is 1.05 m and maximum length in the section is 6'-1" (1.85 m). A portion of the pit is still remains in the section looking west, The pit line of the grave joins the original pit-line of the dwelling pit, in the northern side. Filling of the grave pit consists of loose earth mixed with considerable amount of ash, stone pieces, and several chunks of charcoal and reddish burnt earth. It contains quite a good number of potsherds.

The skull region is badly damaged by a later pit 2b which extends up to the top of the skull. It is clear from the evidence that something was burnt in the pit 2b as big chunks of burnt earth lay over the skull and chest region has been noticed. The skeleton which belongs probably to that of a male is found in an articulated condition with almost all the parts present. This is a fine example of an extended burial.

The deceased was placed slightly away from the centre and more towards the south-eastern side of the grave pit, as a result nearly 2/3rd of the grave pit is lying vacant.

The skeleton is lying at a depth of 9'-11" (3.02 m) below surface in supine position, oriented south-west to north-east. The skull is resting in the south-west and the legs are towards north-east. The skull is slightly tilted towards right. The entire body, except for the hands, is in a stretched condition. Fingers are folded towards the palm. The left hand is bent at the ankle and is resting over the chest just below the neck.

Two stone pieces are found lying on the right side of the skull, touching the right orbit and the right parietal bone. Another piece of stone is lying near the right half of the mandible.

The stem of a hand-made earthen stand is found on the right side of the right humerus, away from its deltoid region in a corner in the grave-pit. .

The skull along with the mandible is lying in a badly damaged condition. The skull is tilted towards right and its left lateral aspect is visible. Frontal bone has broken into several pieces. A wide crack has developed from the nasion point. Facial parts are heavily damaged. Except for the left mastoid process which is sunk inside the brain cavity, all the other bones from the region mentioned above are missing. Left eye orbit is complete, although zygomatic bone and process have separated from each other. Most of the sagittal and coronal sutures are closed endocranially. The cranial bones are thick and heavy. Complete fusion of the suture at the lambdoid region indicates age over 50 years.

Occipital bone is present in a fairly good condition and so also the right temporal, squamosal, parietal bones and mastoid process are present. Major portion of the nasal bone is present in small fragments. Anterior nasal spine is totally missing. Major portion of left maxilla is missing. Right maxilla is present in a dislodged condition with heavy damages.

None of the sutures on the left side are visible. Left infra-orbital foramen is present. All the teeth from the upper jaw are missing.

Mandible is in an extremely fragile and damaged state. The body of the mandible is robust. Right ramus is not visible. Rest of the mandible has broken into three major pieces. Left ramus has separated from the point of angle. Body of the mandible has broken into two at the point of mental protuberance. Left ramus is badly damaged from the point of mandibular foramen along with the posterior border up to the angle. Left coronoid and condylar process of mandible are intact. Head of left mandible is also in a good state. The mental tubercle is distinct and oval in shape. The chin is rounded, well developed in the protuberance with slight shelving at the symphysis. Five teeth (2 molars, 2 premolars & one canine) of the right lower jaw are visible, while only one premolar from left side is present. A canine is lying just above the right canine.

The skull is quite big in size and seems to be more in length than in breadth. Walls of the skull are quite thick. Glabella is prominent. Upper margin of the orbit is thick, rounded and rough. Forehead is sloppy. The Skeleton belongs to that of male aged between 50-55 years.

Skeleton no. 10 (Fig. 7.1.)

This human skeleton is said to have been reported from early phase of Neolithic level Period II at BZH-3. The skeleton is in an extended primary articulated position. Unlike the other burials of the Neolithic period II, it was in a south-west to north-east orientation. The skull has been found in a considerably damaged state due to thrust of stone pieces inside the grave, as these stone pieces were found in the grave filling. A circular stone bowl was also buried along with the skeleton in the grave pit as grave

good. The grave pit is dug into an earlier dwelling pit found along the periphery of the mound. The grave pit is more or less circular and has been cut in a layer of the floor. The pit is at the depth of 3.25 m from the present surface. The finding of circular stone bowl indicates the use of stone vessels from the early level of Neolithic Period.

The lower jaw is gracile and moderate in size. Greater part of the left ascending ramus is broken. The mylohyoid ridge is not sharp and only mildly developed. The chin is prominent, rounded and slightly everted. The height of the corpus at the region of the corpus is low (29mm) but at the symphysis it is somewhat high (34mm).

The skeleton belonged to that of an adult male aged 25-30 years.

The detailed morphological examination and studies undertaken by Anthropological Survey of India is published as Human Remains from (Basu and Pal 1980). The skeletal samples unearthed from Burzahom are not sufficient to provide a definite and satisfactory picture of the physical characteristics of Neolithic people of Burzahom. Therefore, any definite conclusion regarding the cultural affinities with people of similar cultural development in other parts of India is also untenable. However comparison with the limited material available from sites which are chronologically and geographically nearer to Burzahom, provide valuable information for further studies.

The height of all the male members except skeleton No. 5 is almost the same. The estimated statures of the male members i.e. skeleton No. 10, 9, 1 & 6 are 177.1 cm, 178.5 cm, 176.4 cm and 173.4 cm respectively and all these skeleton fall within the category of tall. Similarly, females also have uniformity of stature, the estimated value of the two females (i.e. Skeleton No. 8 and Skeleton No. 7) are 159.1 cm and 163.8 cm respectively. The values of arms and legs indicate that Burzahom people possessed relatively long legs in relation to the arms.

From the metric and descriptive cranioscopic observations, it is suggested that the long headed dolichocranic individuals were prominent in the Burzahom Neolithic period population. The major features of this group are: long and narrow head, protruding occiput, somewhat low receding forehead, medium to prominent supraorbital ridges, prominent glabella with distinct postglabellar sulcus, high vertical porion height, and sturdy build with tall to medium stature. The two female skulls differ from the male skull (skl. 1) in usual pattern of sexual dimorphism, but the proportions are mostly similar. There is no evidence of brachycranial skull in either sex.

Among the four skulls, special attention could be given to one male skull as it has comparatively greater cranial width, markedly wider bizygomatic and bimastoid breadth, very wide nasal breadth, very wide palatal breadth and low upper facial and nasal height. It is however difficult to state whether this particular cranium is merely an expected variant of the basic long headed element or it represents a different population

group that immigrated into the area. And it will be very difficult at this stage to predict from an isolated specimen that there was an influx of divergent population during Neolithic period at Burzahom. Moreover, there was no evidence uncovered during the excavation to indicate any marked interruption or ethnic intrusion throughout the period.

Although distinct differences in major craniometric traits between Burzahom and other Neolithic sites of India has been observed, no such differences occur regarding the dental measurement. The dental health condition of the Burzahom people can be considered as sound, though general wear of teeth was marked to an extreme degree of attrition which was probably due to constant chewing of rather coarse food items. From morphometric comparison of skeletons, it is plausible to say that the Burzahom people are more similar to Harappan people from Cemetery R 37 than to Neolithic People of southern India. The resemblance of a number of morphological characters traced between the population of Burzahom Neolithic culture and cemetery R37 of the mature Harappan Culture most probably reflect their genetic affinity and hints towards ethnic continuity. This suggests that in spite of cultural differences the basic long headed element was common to both and continued to exist as the Harappan culture in the plains and Neolithic culture in Kashmir valley during the same time span.

Trepanning in Skeleton No. 7: (Fig. 7.1.)

The evidences show that right from the early centuries people in India knew the art of trephination catering to both surgical and magico-religious needs although evidence of trepanned human skulls from the ancient sites of India are not very common. There are only few sites where one can see this feature.

There are three cases of cranial perforation recorded. One from contemporary Harappan sites at Lothal, Gujarat, another from Kalibangan in Rajasthan and the third is from Megalithic site of Maski, Karnataka.

An isolated specimen (BZH skull no.7) from northern Neolithic site of Burzahom is added in the distribution of trepanned skull in India. The trepanned Burzahom skull has a cranial volume of 1353cc.

The skull was first noticed by Allchin and Allchin (1968) as a case of trephination and was studied by Roy Chowdhury. (1973) Later detailed analysis of the skull No. 7 was done in Anthropological survey India, Kolkata by Basu and Pal (1980) and S. Ankhyan & George Weber (2001)

On the left parietal bone of the skull there are six complete circular holes with their diameters varying from 8mm to 13mm. There is also evidence of unsuccessful attempts of perforation. Roy Chowdhury who examined the skulls is of the opinion that there are evidence of attempted perforation in the form of shallow depressions on the

skull. There are 5 such depressions, apparently circular in shape with diameter ranging between 7 mm and 10 mm. Hence there are 11 trepanned areas on this skull's vault.

The most important question in connection with the Burzahom specimen is whether these artificial openings were made ante-mortem or post-mortem from the nature of the cutting edges none of the perforations appear to be ante mortem and therefore it can be assumed that these perforations were done after the death of the individual. (Basu and Pal, 1980).

The perforations on this specimens showed that they were intentional. The margins of the complete and incomplete holes, however, neither show any sign of Osteogenesis (callous formation), nor t are there any tool marks, cut marks or deep scratches The edges of the circular openings are neither smooth nor bevelled giving the clear impression that the perforations have been made post mortem. Basu and Pal (1980) did not recognize any evidence of sclerosis and came to the conclusion that it was not a surgical operation either performed while alive or after death.

From the circumstantial evidence of the grave pit of skeleton no. 7 it is apparent that the skeleton was re-exposed after the decomposition of the flesh, and all available parts of the skeleton, including skull were treated with red ochre solution.

In the grave pit, the skull was found in situ resting on its right side facing the west only the left lateral portion was visible from the top. It seems that the complete as well as attempted trephinations, in the left parietal, were made with some solid objects like narrow circular stone/bone implements for some magico-religious purpose at a time when the skeleton was exposed for the application of red ochre solution.

Although Dr. Roy Chowdhury noticed evidence of a ring of sclerosis (callous) around one hole of the skull, the detailed observation by Basu and Pal (1980) reported no signs of growth of bone around any of the holes. Thus it seems that the perforation on the Burzahom skull is a case of post mortem operation undertaken for ritual purpose rather than for medical treatment (surgery). However, there are also claimants that it was performed on a living woman at Burzahom (Allchin 1968).

S. Ankhyan (2001) argues that the lady probably was suffering from some traumatic disease that forced the surgery to becarried out, as the very carefully performed trepanations at several different stages onan anomalous skull, is a clear case of surgery performed for medical reasons on a living person. Further analysis and scientific study of the skull of Burzahom may through some light on different arguments regarding the purpose of the trephination.

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7.2 Animal Skeletal Remains

The subsistence economy of the Neolithic folk of Burzahom was based on hunting of wild animals, domestication of animals and plant cultivation. The wild animals include deer, Kashmir stag, ibex, bear, wolf, nilgai and urial. Domesticated animals

include cattle, sheep, goat, dog, pig and fowl. Domestication of animals was useful not only for meat but also for milk, dairy product, butter, hide, agricultural operations, and mode of transport and making of bone tools. So far as the animal skeletons from Burzahom are concerned, it was for the first time in the Indian sub-continent that so many systematic burials of animals, both individual animal burials and animals buried with human being were encountered and studied by experts in this field. A.K. Sharma, one of the team members of the Burzahom excavation and also in charge of anthropological studies identified three types of animal burials (Sharma 1968, 1998). In the first type pet animals like dogs, sheep and goat were sacrificed to honor the dead person and some parts of the animal were interred in the grave pit. In one case, skull of a dog was deposited, whereas in another case fragmentary bones of goat and antler were interred with the human Skelton.

The second type is fractional burial. This is represented by three examples: one from Period II and two are from Period III. In Period II, fragmentary bones of wild dog along with two antlers of barasingha (*Cervus duvacelli*) were noticed. In another fractional burial, disarticulated bone fragments belonging to that of a Himalayan ibex (Fig 7.2.5) were deposited in a pit, whereas at a lower level in the same pit fragmentary bones of ibex, dog, sheep and goat were deposited. In the third type, pet animals, mostly dogs were deposited inside the burial pit at different levels. Two cases of wolf burials excavated from the site are also included in this category. Dog had a special place during Neolithic and Megalithic period as per available evidence from Burzahom. This is proved with the finding of a burial in Neolithic Period II, where the dog was buried with its owner under the floor of the house. The interdependent relation shared between dogs and people of Burzahom is artistically depicted in the engraving on a stone slab. The dog guarded the herd and helped his master in pursuing the hunt on which his sustenance depended.

It is interesting to note that at Burzahom, during early Neolithic level, two types of domestic dogs: one smaller but stouter like the mastiff and the other taller like the Greyhound were present and continued during megalithic period also.

From the Neolithic levels at Burzahom, bone of dog (*Canis familiaris Linn*), Kashmiri stag (*Cervus elaphus hanglu wagner*), wild boar (*Sus scrofa Linn*), domestic pig (*Sus cristatus Wagner*), wolf (*Canis lupas Linn*), nilgai (*Boselaphus tragocamelus Pallas*), Gaur (*Bos gaurus*), the domestic humped cattle (*Bos indicus Linn*), the Indian bison (*Bubalus bulalis Linn*), wild sheep urial (*Ovis orientalis vignei Blyth*), the argahi (*Ovis ammon Linn*) domestic goat (*Capra hirucs Linn*) and domestic sheep (*Ovis orientalis Gwelin*), have been identified. Gaur has been recorded for the first time in Kashmir, which is now extinct there. All these species including the wild sheep continued to occur during the megalithic period. In all, there are eleven animal burials

and based on the evidence unearthed from the excavation so far, the descriptions of each and every skeleton remains are given below.

Skeleton No. 1 (Fig. 7.2.1)

A complete skeleton of a dog (mastiff type), is found in pit -7 between the pegs XXx' and XXIIIx' in the eastern sector of BZH-1 1962. The grave-pit is located in the south-western corner of the trench. Major portion of the pit is within the trench, while a portion of it extends both in the western as well as in the southern section. The grave-pit is cut in layer 9 and sealed by layer 8 with its top at the depth of 1.73 m from the present surface. Stratigraphically this burial would lie in the middle levels of Period II. The maximum length of the pit available on the plan is 99.1 cm (3'-3"), while the maximum breadth is 63.5 cm (2'-1").

The in-situ position of the skeleton suggests the sleeping posture of the animal. It is resting on its left side with its snout just touching the phalanges of the right front leg. The skeleton is lying in the north-south direction with its skull towards the north and is more or less in an articulated condition with a few ribs and vertebrate lying disturbed.

The skeleton is at a depth of 27.9 cm (11") from the top of the pit. The skeleton is lying in a slightly inclined position wherein the anterior is at a lower level than the posterior. The pelvic region (posterior) is at a depth of 1.88m and the skull is at 2.03 m from the present surface. The pelvic region is at a depth of 1.88 m (6'-2") and the skull is at 2.03 m (6'-8") m from the present surface.

Except for the left half of the pelvic girdle and left ribs, nearly all other parts of the skeleton are visible and are in-situ condition.

The skull is in fairly good state of preservation except for fractures on the pre-maxilla caused due to the pressure. All the teeth in the upper and lower jaw are intact including the canines. The mandible is slightly damaged and very fragile. Frontal, parietal, zygomatic process of the squamosal and lacrimal bones are intact and in a fairly good condition. Nasal bone is partly damaged.

So far as the vertebral column is concerned, atlas, axis and most of the cervical vertebrae are present though these are not in their articulated condition.

The right scapula is very fragile and broken, while the left is partly visible and disturbed from its proper position.

Nearly all the ribs of the right side are present but in a broken and fragile state.

Right humerus is in its proper articulated position but is broken at the centre of the shaft. Both distal and proximal ends are intact and in a fairly good condition. Left humerus is not visible.

Right radius and ulna are present in an articulated condition. Distal end of the right ulna is broken. Only few carpals, metacarpals and phalanges of the right fore-limb are present in a scattered way. Left radius and ulna are not visible.

Right half of the pelvic girdle is in its proper position but is broken and very fragile. Right iliac is broken into two at the centre, while ischium and pubic regions have also developed cracks. Left hip bone is not visible.

Right femur is in a good condition with its head near the right acetabular cavity. Distal end is intact. Patella is missing. Right tibia and fibula are in an articulated condition and in a fairly good state of preservation. Astragalus, calcaneum, cuneiform, cuboid bones and phalanges of the right hind leg are present.

Left femur, tibia and fibula are partly visible in their disturbed position. Three of the metatarsals are lying away from the right tibia and fibula.

Skeleton No. 2

A skeleton probably of a dog has been found in a small pit cut nearly in the centre of a big pit in the south-western quadrant of trench A1 of BZH-4. Stratigraphically, this burial belongs to the upper levels of Neolithic Period –II. The grave-pit (Pit 1) is cut into layer 6 which is at a depth of 1.70 m (5'-7") from the present surface. It is lined by 'Chunam' all around on its inner sides. The pit is nearly circular measuring 91.5 cm (3'-0") in diameter. It is filled with ashy sediment, a mixture of clay, ash and mud.

The skeleton is lying near the western corner of the pit with its skull resting in the north. The skeleton is resting on its right side in a more or less articulated condition, with the hind limbs and pelvic region slightly disturbed. The front and hind limbs are bent and the lower extremities of both are touching each other. At the right, the articulation of skeleton especially the limbs give an impression of a running dog. Maximum length of the skeleton in-situ (from vault of the skull to the ischium) is 68.5 cm (2'-1".)

The skull is represented only by tiny fragments lying loose due to the ashy filling of the pit. The whole skeleton is very fragile and hardly anything worth studying can be lifted. Only the left half of the skull is visible. Frontal bone is completely missing along with the upper jaw, while the left temporal is pressed inside and part of the left parietal is intact. Maxillary and premaxillary bones are badly damaged. The eye orbit is not at all visible except for a piece of zygomatic process. Third premolar of the left upper jaw is present. Except for the three left lower molars, all the other teeth of the left mandible are missing. The auricular condyle is present while the tip of the coronoid process is broken.

The vertebral column is in a fairly good articulated condition though some caudal vertebrae are missing; The two present are lying disturbed from their proper position. All

the vertebrae are extremely fragile and spines of most of them are broken. The cervical and thoracic are comparatively better than the lumbar and caudal. Fragments of ribs from both the sides are visible. Some of the rib fragments from the left side have mounted on the thoracic region of the vertebral column. Most of the pieces of ribs are disturbed from their actual position.

Left scapula is present and is very fragile. Glenoid cavity of both the sides are quite intact. The spine and the acromion process of the left scapula is broken. The coracoid processes as well as the inferior and superior angles are damaged.

Both the right and left humeri are in a proper articulated position. The upper and lower extremities of the left humerus are in a fairly good state of preservation but that of the right humerus is in a damaged condition. Both the humeri are lying side by side. Radius and ulna of both the sides are very fragile and broken into several pieces. Their lower extremities are completely missing. Left radius and ulna have mounted on both the tibiae, while that of the right side are lying disturbed.

Phalanges from the left fore-limbs are present, while from the right fore-limb only four metacarpals are present. Cuboids are missing.

Left femur is represented by two pieces (upper and lower extremities) while the middle portion of the shaft is missing. The head of the left femur is dislodged from the acetabular cavity of the left side. The right femur is more or less in proper position. Its medial and lateral condyles including the popliteal surface are broken. It has also cracked in the centre of the shaft. Only the upper extremity and the upper half of the shaft of left tibia are present. Right tibia is not visible and both the fibulae are missing. Astragalus, calcaneum, cuboid and phalanges of the hind legs are also missing.

The left half of the pelvis is badly damaged and in a fragile condition. It has broken into three big pieces with multiple cracks on the bones. Above the acetabular cavity the ilium has broken into pieces. Similarly, below the acetabular cavity ischium has also broken and separated from its right half.

After lifting this skeleton, the pit is excavated further and another animal skeleton of a dog is found lying at six inches below the first one, in an articulated condition. It was lying towards the eastern side of the grave pit.

Skeleton No. 3 (Wolf, Figure No.7.2.3)

This skeleton is found from the upper levels of period II in the north-east quadrant of A-11, BZH-3 1962. The skeleton is found from Pit 7 which is cut at the top by a pit numbered 5.

The skeleton is completely charred at various places and is lying at a depth of 1.85 m (6'-2") from the present surface. The pit containing the skeleton is on the north-eastern corner of the trench and is filled with ashy deposit.

The skeleton is lying on its left side in the north-east to south-west direction with the skull towards the north and facing east. Legs extend towards the eastern section.

Bones in the periphery of pelvic region are completely charred. Most of the vertebrae, some of the ribs, both the femurs, pelvic girdle, upper ends of tibia and fibula, lower end of right humerus, upper half of the right radius and ulna are charred.

The skeleton is lying in a more or less articulated condition. Most of the parts are extremely fragile, damaged and loose due to the ashy deposit of the pit.

The skull is represented by numerous small fragments and is extremely fragile. The mandible is also broken into several pieces and hardly anything worth studying can be lifted intact. Two canines are present. Both the scapulae are practically missing except for their impression on the earth. The ribs are broken into small fragments and not a single piece is complete. Right humerus is intact, but is broken at its proximal end while the rest of the portion is in a fairly good state of preservation.

Right radius is broken at the middle of the shaft, but the extremities are intact. Left radius is intact. Right ulna is represented by the proximal and distal ends while the middle portion of its shaft is missing. Carpals and metacarpals of the forelimbs are present in a fairly good condition. The pelvic region is completely charred and damaged and is represented by several small pieces. Right femur is broken into three pieces. Shaft is intact but the head and the extremities are separate. Left femur is broken at the upper end separating the head from the shaft. A part of the upper half of left femur is lying below the vertebral column. Left patella is present in its proper position while the right one is missing.

Right tibia and fibula are broken from the middle. Their proximal and distal ends are in a good state of preservation. Left tibia is broken at its distal end and the left fibular bone is broken at the middle. Right calcaneus and cuboids are intact. Left tarsals and phalanges are well preserved.

Skeleton No. 4 (Fig. 7.2.4)

Two circular grave pits in the shape of numeral 8 have been exposed in the south-western corner of the quadrant B-11 of BZH3 (1962). Pit I is the upper part of the numeral 8 shaped grave pit, while Pit II is its lower part. The pit is cut into the rammed floor of karewa soil and is sealed by Layer 8. The pit does not seem to be a refuse pit, since it is cut into a regular floor level of karewa soil and is devoid of any ashy material. Top of the pit is at the depth of 2.13 m from the surface. The bottom of the pit is at the depth of 3 m. The pit I revealed an assemblage of five complete skulls (four of dogs and one that of wolf) with or without mandible and also fragmentary bones of domestic humped cattle, hanglu (*Cervus elaphus hanglu*) with a few antlers, wild urial, domestic sheep, nilgai and a pig. The animals indicated above are identified by zoological survey of India on the basis of skeletal remains found in the pit.

Regarding the position of skeletal parts of different animals in the pit is involved, no definite pattern in their disposal is in evidence. Even the dimensions of the burial-pits are limited and animal skulls, bones and a few antlers have just been more or less dumped. The diameter of pit I is 1.37 m. (4'6") while the diameter of pit II is 1.22 m. (4') only. There is no specific orientation for the skulls or the associated remains, since these seem to have been placed rather in a random manner. Besides the fragmentary skeletal remains of the animal listed above, a number of stones had been dumped into it.

Of the five skulls (four of a dog and one of a wolf), the first is in the western end of the pit in a good state of preservation and articulated with it are three vertebrae. This is the only skull in which case both the mandible and maxilla are intact. Most of the teeth in the upper and lower jaw are intact. In front of this skull is lying one rib and an antler with a broken top and has got two more branches besides the main. Overriding the 2nd branch of the horn is another skull with two vertebrae attached in damaged condition to the foramen magnum. It is devoid of its mandible and is lying on its right side. The third skull is lying away from the Supra-occipital region of the second skull. It is resting on its right side and facing north-west. A portion of vertebral column with eight vertebrae is attached to the occipital condyle of this skull. The fourth skull is lying in the south-eastern corner of the pit. Five vertebrae are attached to the foramen-magnum of this skull and are in a proper articulated condition. The fifth skull is lying in the north-east direction of the third skull. It is resting on its right side, facing east. Eight vertebrae in a damaged but articulated condition are attached with this skull.

Both the pits were excavated further deep, which yielded another antler at the bottom of the pit I and nothing from Pit II.

Skeleton No.5 (Figure No. 7.2.5)

An animal burial identified as that of a Wild Urial (*Ovis orientalis vigneiblynth*) by the Zoological Survey of India has been found in grave-pit 15 in the south-eastern quadrant of B6 in BZH-3 (1962). It is nearly circular and properly laid out, the diameter being about 1.07 m. (3'6"). The pit has been cut into layer 5 and is sealed by layer 4b. Stratigraphically the burial thus lies in the upper levels of Period II. The pit seems to have been cut in a roughly laid out floor level. The burial thus seems to lie within the house complex. The top of the pit is at a depth of 1.60 m. (5'3") while the skeleton is at a depth of 1.91 m. (6'3") from the present surface. The proper position of the various parts apart from minor displacement clearly indicates that it is a primary burial laid out in a proper manner. A few important parts, especially the skull have been found in a damaged condition.

The orientation of the skeleton is east-west and the animal has been laid to rest on its left side. Fragments of the mandible are on the east and the tail is towards the west. The skull is missing and only a few parts of the lower jaw along with a complete vertebral column have been found in the pit.

Maximum length of the skeleton in-situ condition is 86.4 cm. (2'10") and the maximum breadth is 55.9 cm. (1'10"). The legs are towards the south. Only the fore-limbs were found lying in an articulated condition, the hind-limbs being fragmented were not in proper position. Right hind-leg has been placed on the stomach and the chest. Only a few fragments of the pelvic girdle were found. Ribs are more or less in their proper position. Right femur is in proper articulated condition. Right radius, carpals and metacarpals are intact. Both the humeri are in order. Atlas and axis are twisted towards the back. Talus bones are present in good condition.

Skeleton No. 6

Skeletal remains of a domestic dog Type I (*Canis familiaris Linnaeus*) have been found between peg no. XXIX' – XXIX in a grave-pit in BZH-1. Since the burial lay partly under a baulk, the level to which the pit has been cut could not be therefore determined properly. Thus it has been categorized as unstratified, even though the position of the grave-pit and other relevant factors indicated that it would lie in the closing stages of Neolithic Period II.

The animal skeleton is oriented in north-south direction in articulated condition, the skull towards the north and the caudal region is towards the south. The animal has been laid to rest in a slanting position, with the pelvic region at a higher level. Maximum length of the skeleton is 66 cm. (2'2"). The pelvic portion is at a depth of 1.85 m. (6'1"), while the skull region is at a depth of 2.31 m. (7'7").

The animal has been laid resting on its left side. The skull is missing. The vertebral column is in an articulated condition, though some vertebrae are missing. Left radius and ulna are in order and the counterparts on the right are in an articulated condition. Phalanges are completely missing. The rest of the bones are partly present. Maximum length of the grave-pit is 91.4 cm. (3')

As identified by the Zoological Survey of India in their report, a few isolated bones of a domestic dog, Type II, have also been found in the same pit. The bones comprise a fragment of pelvic girdle fitted with the head of femur, distal fragment of Ilium and right tibia. Apparently it is a secondary burial.

Skeleton No. 7

Skeletal remains of an animal (probably wolf) have been found in pit 5a of the quadrant A4-A5, BZH-4(1963). The pit is quite big in size and is not a grave pit. It has been cut in layer 8 and was disturbed at its top by a later pit. The pit 5a is peculiar in shape. The skeleton is lying in the north eastern corner of the pit at a depth of more than 2.13 m (7') in association with a few isolated bones of a dog (mastiff type) and the 2nd lumbar vertebra of a gaur. The skeleton is lying on its left side with its fore-limbs towards north and hind limbs towards south. The vertebral column is towards west while the legs are pointing towards east. Maximum length of the skeleton in-situ condition

north-south is 2'-0" (61 cm) from pelvic region to the phalanges of the left fore-limb. Almost all the parts present are in a perfect articulated condition.

The skull is represented by a piece of zygomatic bone only.

Of the left fore limb only a portion it is visible, as it is hidden below the right fore-limb. Left humerus is not visible. Lower half of the radius and ulna are visible and have broken at their distal ends. Left carpals, metacarpals and phalanges are present. Left forelimb is twisted towards the skull region. Right forelimb is in a perfect articulated condition with all the bones present in a good condition. Head of humerus which has separated from the shaft is articulated with the glenoid cavity. Right radius and ulna are in articulation with the distal end of humerus. Carpals, metacarpals, phalanges and claws are present. Only right scapula is visible. It has cracked at several places and is very fragile. The vertebral column is in a articulated condition. Atlas axis and caudal vertebrae are missing. Thoracic and lumbar vertebrae are present but their spines have broken.

Almost all the ribs are present, mostly in pieces.

Pelvis is in a badly damaged condition. Right half of the pelvic bone is totally missing. Left half has also broken into several pieces particularly at the acetabular point.

Right femur is represented only by its distal portion. Right tibia and fibula are in an articulated condition. The tibia is cracked at the proximal end, while fibula has broken into three pieces. Right astragalus is prominent.

Tarsal, metatarsals and phalanges are present in their proper position.

Left femur is present in an articulated condition. Only the lower end of left tibia is visible while the rest of its parts and fibula are hidden by the right femur, tibia and fibula. Left foot-bones are present in a good condition.

Some other animal bones are also present with this skeleton. Towards the north of right forelimb is present the distal half of a humerus, radius, ulna and phalanges belonging to that of a dog. These parts are in an articulated condition. Near the skull region and from below the right scapula is jutting out, the lower half of tibia and fibula and with their distal ends are articulated astragalus and calcaneum piece.

Near the skull is lying a broken distal end of a femur and a piece of fibula.

It is possible that these parts might belong to another animal which may be lying just below this skeleton.

Below the phalanges of right hind limbs is lying a single big vertebra probably that of an Ibex or an animal of that size.

Skeleton No. 8

Skeletal remains of an animal identified as wolf (*Canis lupus Linnaeus*) by the Zoological Survey of India, have been found in the grave pit 2 of quadrant A-1 of BZH-IV. The same pit yielded skeleton of a dog in its western half during 1962 excavation. The wolf skeleton was found when the pit was excavated further deep. This pit was sealed by layer 5.

After 7.6 cm (3") of the ashy material mixed with stone pieces was scooped out, another skeleton of a dog has been found in the eastern half of the grave pit. This skeleton is also lying in the same fashion as the dog burial previously excavated from the same pit. Both were lying parallel to each other in a stepwise fashion.

The skeleton is lying in north-south direction with the skull towards north and the caudal region towards south. It is resting on its right side with the limbs towards west and the vertebral column towards east.

The skeleton is more or less complete except for heavy cracks and breakages of the bones. Lower ends of the fore-limbs was found placed one over the other.

The skeleton is lying at a depth of 2.16 m (7'-1") from the present surface level. Snout and end of the limbs were lying at a higher level, 2.11 m (6'-11"), while the pectoral portion is at a lower level, 2.121 m (7'-3").

Maximum length of the skeleton from the snout to caudal and is 71.1 cm (2'4") while maximum breadth is 38.1 cm (1'-3") in situ condition.

While burying the dog, the head was placed in the norma-occipitalis position in which the head was twisted side-wise so that it is mostly resting on the occipital region with the jaw ends looking upwards. To say it briefly, the mandible is in a good condition with nearly all the teeth present.

Upper jaw is heavily damaged and the canines are missing. Zygomatic bone has also broken into pieces. Eye-orbits are damaged. The vertebral column is in a perfectly articulated condition and all the vertebrae right from the atlas to caudal are present. Atlas, axis, and thoracic vertebrae are crushed and it is hardly possible to lift anything intact. Scapula has broken into several small fragments.

Both the forelimbs are in an articulated condition and have been stretched towards the hind-legs. Left humerus is intact. Upper and Lower extremities are present but the shaft has cracked into several pieces. Right humerus is lying below the left and is thus not visible and their lower extremities are damaged.

Left radius and ulna are intact. All the carpals, metacarpals and phalanges of the fore-limbs are present.

Almost all the ribs are in their position but have broken into several pieces. Hip-bone is badly damaged, left iliac bone is intact but the right one is broken. Pubic bone has also cracked. Ischium is intact. Both the hind-limbs are in an articulated condition. Head of left femur is broken, while its distal end is intact and the shaft has cracked into several pieces. Right femur is badly damaged at the distal end and shaft region. Head is intact and articulated with the acetabular cavity. Left tibia and fibula have broken into two pieces at the proximal part whereas right tibia and fibula are intact. Astragalus of left leg is intact and visible. Astragalus, calcaneum and phalanges of the right leg are lying below those of the left.

Skeleton No. 9

In the sq. B6 (south-eastern sector) of BZH-3, grave pit 15 which is sealed by layer 5 was excavated further deep after lifting the skeletal remains of the wild urial exposed during 1962 working season. In the same pit at a depth of 7'3" (2.21 m.) from the present surface, a number of loose bones belonging to different animals have been encountered.

It seems that the pieces of bones were dumped in the pit after consuming the meat. All the bones except for a piece of a horn were concentrated in the northern half of the pit.

The cluster of bones contains two antler pieces in a highly damaged and fragile condition, part of a vertebral column (probably that of a dog) containing at least ten articulated vertebrae, a piece of jaw (probably of a goat containing five teeth), one scapula with its glenoid cavity intact, two humeri, three radii, two ulnae, one femur and pieces of several ribs. Apart from these, a piece of another damaged scapula, a few vertebrae and fragments of limb-bones are present in the pit.

The animals represented in the pit are mostly stag, dog, sheep, domesticated cattle, and goat. The bones have been dumped along with several stone pieces. The pit filling mostly consists of ashy clay and stone pieces.

Skeleton No. 10

In quadrant BZH-1 between peg nos. XXx'-XXIIIx', skeletal remains of a pup have been found near to the southern section facing north. This animal has been buried at a lower level than the animal skeleton no.1 found during 1962 working season in the same pit. This skeleton is at a depth of 2.36 m (7'9") from the surface, and identified as domesticated dog by Zoological Survey of India.

On plan the maximum length of the pit is 1.33 m (4'4½") and breadth is 1.22 m (4'). Slightly away from the centre of the pit towards the south eastern corner there is evidence of a big post-hole.

The skeleton is lying in east-west direction, with its skull towards east (snout pointing towards north-east) and caudal region towards west. The back is towards south and the limbs are towards north. It is resting on its right side. Maximum length of the skeleton *in-situ* state from maxillary teeth to the caudal end is 61 cm (2')

The skeleton is in a badly damaged condition. Skull and limbs are particularly damaged. Both the mandible and maxilla are present. Left part of the skull particularly the zygomatic process and eye orbits are totally smashed. The skull is broken into several small fragments and it is hardly possible to lift it intact. Occipital region is in a fairly good condition. All the teeth are present.

The vertebral column is very much intact with almost all the vertebrae present including the caudal ones in an articulated condition. Some spines are broken. Almost all the ribs of the left side are intact and present in an articulated condition. The left scapula is in a perfectly good condition with its margin and spines intact. The glenoid cavity is articulated with the left humerus. Left humerus is represented by the intact proximal end. Left ulna is in a good condition.

Right forelimb is almost hidden. A portion of right humerus is jutting out from below the left scapula. Phalanges of both the fore-limbs are totally missing. Pelvic bone is in a fairly good condition. Only a part of both the hip bones is visible. Left hip bone has cracked into several pieces. Of the right hind-limb proximal end and shaft portion of the femur are present. Right femur has broken into three pieces. Tibia and fibula of both the limbs are totally missing. Phalanges of the left hind limbs are lying just near the distal end of right femur. They are also incomplete.

The skeletons of two different types of dogs (burial No1 and No.10) in the pit are found buried at different depths one over the other at right angle to each other. However, it is not sure if they are buried at the same time or different times.

Skeleton No. 11

Skeletal remains of a dog have been found just below the skeleton no. 7 in pit 5 sealed by layer 8 in a badly twisted condition. From the position of the skeleton it seems that the dog was put in a supine position resting on its back and with the limbs upwards drawn towards each other i.e. to the stomach region, and with the skull resting on its left side.

The skull is intact. It is resting on the left side in norma-verticalis position looking towards north-west. Right eye-orbit, all the teeth, zygomatic bone, zygomatic process, maxilla, right parietal and occipital regions, all are intact. On the right, maxilla, rudimentary third molar is present. Snout region is badly damaged and fragile. Major portion of the vertebral column is articulated with the skull. Beyond the second thoracic vertebra it has twisted badly at right angle. Spines of most of the vertebrae are broken. Both the scapulae are present but disturbed from their position and in an extremely fragile condition. Greater angles are damaged but glenoid cavities are intact. Most of

the ribs are present in a twisted condition, those of the right side riding over the vertebral column.

From the left forelimb only the distal end of humerus is present, while rest of the parts is missing.

Distal half of the right humerus is present in articulation with right radius and ulna. Only few of the carpals, metacarpals and one or two phalanges of the right forelimb are present. Major portion of the pelvic bone is intact and in a good condition. Both the acetabular cavities and ischiatic bones are present. Pubic region is badly damaged.

Of the right hind limb, only the femur is present. It is complete and slightly disturbed from its position. Anatomical neck is damaged. The shaft of right femur is lying near the ribs.

From the above, following special features of animal burials of Burzahom are noticed.

Animals, like their human counterparts, are buried in oval pits inside the house complexes or the habitation area.

Except skeleton no 4,(Cluster of skulls), others are in articulated condition.

Skeleton no 3 was partially charred which indicates that probably a limited inhumation process was involved.

In case of skeleton no 4, at least five skulls, four of dogs and one of wolf, mostly articulated with the major portion of their respective vertebral columns, have been dumped in a circular pit. Other parts of the body are also lying in the same pit, complete or in fragments.

Orientation of all the articulated skeletons is north-south, with skull towards north either facing west or facing east. Skulls or other parts of the pet animals have been buried with human skeleton in the same pit. The skull of a dog is found buried with human skeleton no.3 in the same pit at a higher level than the human skeleton. Ibex skull fragments and antler are found with human Skeleton no. 7 at different levels of the grave pit. Fragmentary bones of a goat are associated with human skeleton no. 6.

Systematic burials of more than one animal or fragmentary skeletons were reported from different levels in grave pits. For example, the graves having animal skeleton no. 1 & 10, animal skeleton no. 2 & 8, animal skeleton no. 5 & 9 and animal skeleton no .7 & 11.

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8. CONCLUSION

The Kashmir Valley witnessed a series of climatic changes in the glacial and interglacial period. Those climatic fluctuations tremendously influenced the pattern of growth for the primitive cultures living there. The intervening interglacial periods were favorable for man, while the glacial periods were totally ice-covered and adversely affected life. Palaeo-climatic research has shown that around 10,000 B.P. cooler conditions prevailed in the valley which witnessed excessive precipitations followed by tremendous land erosion. This forced people to migrate from the Kashmir Valley to the Sub-Himalayan region or Gobhi deserts of Central Asia. Extinction of animals like horses and elephants took place due to the extreme cold. Their fossil remains are found in the Karewa beds. On the archaeological side, the poor climate probably accounts for the apparent absence of a proper Mesolithic culture in the Valley. However, by 5,000 B.P. the climatic conditions became warmer and more people migrated into the valley from the neighboring regions with sophisticated and effective hunting and other resource management techniques. The Neolithic people at Burzahom were one of them who occupied commanding terraces having an ideal environmental set up endowed with natural resources. They selected the valley as their permanent habitation and evolved further by adapting themselves to new challenges through hard labors, skill and contact with the adjoining regions. Their evolution and development is reflected in the cultural deposits unearthed at Burzahom and other sites in the Valley.

Vertical and Horizontal excavation were carried out at the Neolithic site of Burzahom between 1960 and 1971 by Archaeological Survey of India. The excavations conducted at Burzahom clearly indicate that Neolithic activities took place in the Valley during the early part of the 3rd millennium BCE. It has been defined as Northern Neolithic Culture because of the distinctive features relating to the structural remains, large varieties of artifacts both in bone and stone and special cultural practices. The archaeological investigations conducted by Archaeological Survey of India and Physical Research Laboratory, Ahmadabad revealed that Kashmir had a highly developed Neolithic culture spread through the length and breadth of the valley and was not confined to Burzahom only. The Neolithic culture in the Kashmir valley is represented by about four dozen sites, all located on the elevated flats of the Karewas, often overlooking streams and lakes. The scanning electronic microscope study of the sedimentary formations shows that before the advent of Neolithic culture the valley was covered by wind borne silt or loessic deposit. Pollen studies of the deposits at Harwan near Burzahom have furnished the evidence for a three stage disturbance of natural vegetation as shown by the decline and appearance of pine-forests. The clearance of these forest at one stage is believed to be related to the farming experiments of the Neolithic settlers in the valley.

The Neolithic character of the site was established during the excavations. Four periods of continuous development in the cultural sequence without any hiatus have been identified. Period I indicates the Aceramic Neolithic and Periods II A and II B indicate the Neolithic Phases with the use of pottery in abundance. Period III is Megalithic, whereas Period IV belongs to Early Historical period. The Megalithic sequence appears to be a deviation in the cultural succession. Large boulders/chunks known as menhirs hewn out by contrasting temperatures in the distant hills were brought to the site by expending a great manual power and installed there probably to commemorate an important event in the community. Rice which is reported to have been introduced here was cultivated in abundance during the Megalithic period i.e. around 1000 BCE, probably consequence to the introduction of new subsistence practices.

The earliest level of the occupation is aceramic and is characterized by underground (dwelling) pits which on plan were mostly circular or rectangular. These dwelling pits were devised by the early settlers in the valley who had evolved a settled way of life. During this period the subsistence economy of the people seems to have been both specialized food gathering and cereal farming, including stock raising, as evidenced by finds of both wild (ibex, bear, sheep, goat, wolf and Kashmiri stag) and domesticated (sheep and goat) animals and grains of wheat, barley and lentils. Animal bones and bone implements were also found from some of the pits.

In the succeeding phase, labeled as Neolithic Period II, pottery came into use. As time advanced, change can be seen in structural pattern and tool kits indicate variations and sophistication. In a wider perspective, the structural and living pattern was determined by the effective use of tools. Tools in bone and stone have been found. The main types of ground and polished stone tools, comprise hoes, axe, adzes, chisels, double edged and perforated picks, knives, harvester with perforations sling balls, hammers, pestles and pounders, querns, rubbers, mace-heads, needles etc. Significance of use of these tools shows that axes, hoes and chisels were used for digging, cutting trees and reaping crops. Harpoons mainly made in bones and a few on stone, meant for fishing. Single or double edged points were used for knitting and making nets.

Apart from the stone tools, a large collection of bone tools has been found at the site. The bone tools found during excavations in various levels of the Neolithic period comprise harpoons, long and curved awls, needles with eyes and without eyes, points arrow and spear heads, borers, daggers, double edged points, picks etc.

Manufacturing of these tools shows professional competence, skilled technique and cultural contacts. In particular the harvesters (both in stone and bone) with two holes for handling it clearly indicates contacts with China.

The pottery sequence at Burzahom is quite distinctive and reflective of the technical advance made by virtue of contacts and requirements induced by life style. At the earliest level of the occupation i.e. Period I, pottery was not in use which therefore is an Aceramic phase. However, without much time gap, handmade pottery was brought in use. Three principal types of ceramics, all handmade, were in use during Period IIA that comprise thick coarse grey ware, fine grey ware and gritty dull red ware. The pottery was made by coiling and 'strip' technique.

The next phase of the Neolithic culture i.e. Period IIB in the valley marks a distinct change. The dwelling units now began to be built above ground either in mud or mud-bricks. In pottery, another type termed as burnished grey ware was added to the already existing one. Here, it can be assumed that changes in advanced pottery techniques were influenced by contacts and trade with the Harappan culture. This is substantiated by the finding of a pot painted with a horned deity. Both in shape and in painted design, the pot resembles the Early Harappan Kot-Diji type and must have been imported from the nearest site of that style, namely Sarai Kola. It is further confirmed by the find of a wheel made red ware pot containing as many as 950 beads of agate and carnelian, which too are not integral to the technological competence of the site. Besides, these, a few barbed arrowheads with mid rib, a ring and a bangle in copper from Period II (Neolithic phase) clearly indicate an intrusion from the contemporary Early Harappan/Harappan sites.

Burzahom have provided evidence relating to the human burial practices during Neolithic and Megalithic periods. Although human burials unearthed from the Neolithic period at the site are few in number, these are worthy of anthropological and archaeological studies and deserve special attention despite their poor state of preservation. These burials provided new information about the unknown morphological appearance of the people who inhabited in the northern most part of India during Neolithic period and helps scholars to form a more definite idea regarding their possible cultural affinities. Dental wear patterns provide information about the nature of diet of the Neolithic people of Burzahom which is consistent with their subsistence economy. An analysis of the values of absolute measurements and indices shows that Burzahom crania are close to Harappa R-37 crania. The resemblance of number of morphological characters traced between Burzahom series and the cemetery

R-37 series of mature Harappan culture, most probably reflect their genetic affinity and hints towards ethnic continuity.

According to Fairservis (1975: 318) the material culture from Burzahom suggests existence of an extensive Central and South Asian Northern Neolithic Culture complex that also included Nepal, Tibet, Kashmir, Hunza, Baltistan and Ladakh. Stacul (1993) has supported it on the basis of subsequent archaeological discoveries as well as his own researches in north-western area of Pakistan. Therefore, human burial remains from Burzahom offer promising scope for studies in population dispersal, especially in the context of local environment. In this connection mention may be made of more recent multivariate approach used by Hemphill *et al* (1991) to understanding human dispersal in the context of different chalcolithic cultures of South Asia and adjoining East and Central Asia (Kennedy 1997). Such studies are awaited in the context of Central and South Asian Northern Neolithic culture complex mentioned above.

Anthropological Survey of India deputed anthropologists D. K. Sen and Pabitra Gupta to visit the site in 1964 and transported the entire human skeleton to Calcutta office of the Anthropological Survey of India, for detail examination and study of skeletal finds unearthed from the Northern Neolithic site at Burzahom in Kashmir. The assessment of Anthropological Survey of India on Human skeletons unearthed during the course of excavations at Burzahom is published by the Anthropological Survey of India (Basu and Pal 1980).

In the northern region of the Indian sub-continent, Burzahom also occupies a unique position in revealing animal burials in all details dating back to the earlier levels of 3rd millennium BCE. This happened in Period II of Neolithic culture. It is apparent that with Harappan contacts and other regions in the North, deliberate burials have started. The Burzahom burials assume special importance in the Neolithic context because these are from stratified chronological horizon. The system of burying the dead provides some indication of the religious beliefs of the people and the ritualistic practices in vogue. However, neither human nor animal burials belonging to Period I, the earliest phase of the occupation, is reported from Burzahom. As far as the practice of animal burials is concerned animals buried separately and with human beings, were encountered and studied by specialists. Dog, wolf, and Himalayan Ibex received special attention. There is ample evidence to substantiate that animals were sacrificed to honour the dead. It is apparent that some funerary rights and beliefs have taken root in the settlement. Pet animals like dogs and goats were interred with the human body. In another grave-pit, five skulls of wild dogs, fragmentary bones represented by ribs, limb bones, pelvic girdles and horns of antler were found buried. It clearly indicates that

some special ritualistic practice needed the sacrifice of a few animals in token thereof. Sometime, the pet animals like dogs and wolves were buried singly or in twos. In one of the burial two dogs were found buried at different levels in the same pit. Another distinctive feature of the animal burials is that the dead were generally buried in regularly dug out grave pits within the habitation area as was done in the case of human burials. Some of these pits were plastered with chunam(lime) and sometimes the pet animals especially dogs were buried within the house compound. Burial of pet animals and in some cases with those of masters is unique. This tradition seems to have its parallel outside the country. Allchin, has reported that the dog was apparently almost a cult animal in the Shilka cave culture of the upper Amur; and dogs were until recently sacrificed and buried with their owners among such people as the Gilyaks, Ulchis and Goldies of the region (Alchin 1968: 160).

It is also clear that the dog had a special place for the people of Burzahom right from the day they settled in the valley. This is further substantiated with the finding of a burial in the Neolithic Period II where the dog is buried with the owner in the house floor. Moreover an engraving depicting a dog on a slab of stone was reported from the site. The dog guarded the herd and helped in pursuing the hunt on which the sustenance depended. It is also interesting to note here that a stone bowl was found with human skeleton from earliest level of Neolithic period from a grave pit at the depth of 3.22 m from the surface .

At Burzahom from the Neolithic period bones of dog (*canis familiaries Linn*), Kashmir stag (*Carvus elaphus wagner*), wild boar (*Sus scrofa Linn*), domestic pig (*Sus cristaus Pallas*), Gaur (*Bos garus Smith*), the domestic humped cattle (*Bos indicus Linn*), the Indian bison (*Bubalus bulalis Linn*), wild urial (*Ovis orientalis Vignei Blyth*), the Argalli (*Ovis orientalis Gwelin*) have been identified. Gaur has been recorded for the first time in Kashmir which is now extinct. All these species including the wild sheep continues to occur during the Megalithic period. Based on the evidence unearthed from the excavations so far, the description of each and every animal remains were examined and published by A.K. Sharma.

It has been confirmed through radio carbon assay of different samples from Burzahom and Gufkral that the Neolithic Culture of Kashmir extended up to the last quarter of the 3rd millennium BCE and Megalithic culture did start around 1700 BC and may have continued till about 1000 BC. Using MASCA calibration, it is reasonable to assign the time scale to the respective three periods of Neolithic Culture in the Kashmir Valley: Period I 3000-2850 BC, Period II A 2850-2550 BC and Period II B 2550-1700 BC 1700-1000 BC. This is followed by the Megalithic culture period III 1700-1000 BC.

Thus, in a chronological perspective, it can be argued that when the Kashmir Valley was passing through the Neolithic stage, the valley of Indus or parallel river systems were witnessing full blown urbanization, best represented by the well developed Indus or Harappan Culture. Lying on the cross-roads of many nations and regions like Pakistan, Afghanistan, Baluchistan, Tibet and China. The valley experienced continuous movements of multiple-ethnic groups. As a result the region had wide cultural contact from the Neolithic period onwards. Sites like Sarai Kola in Potwar Plateau, Ghalighai and Loebnar in the Swat valley, Kili Gul Muhammad in Quetta valley, Baluchistan and Jalilpur in Pakistan very much influenced the Neolithic culture of Kashmir as certain traits of these cultures are found to have been adopted by the people of this valley; influences also came from the east, especially the Yang Shao culture and Lung Shan culture of northern China.

The Neolithic assemblage unearthed in the Kashmir Valley in many respect is unique in the country. Burzahom and Gufkral excavated in 1960 s and 1980 s are two sites that showed sequential stages of food production from aceramic stage to ceramic stage. No other Neolithic assemblage in our country shows a similar developmental feature. The above division of developmental stages was mainly based on the presence or absence of pottery.

Presence of typical Neolithic artefacts and skeletal remains of domesticated animals helped to define the nature of food producing economy at these two sites in the 1960's and 80's. Several new scientific techniques are now available for understanding different economic activities associated with early stages of food production. For instance, archaeobotanical studies dealing with charcoal, phytoliths, pollen and starch remains along with charred grains are extensively used these days for this purpose. Analyses of food residue from ceramic vessels together with archaeozoological studies are capable of revealing general trends in food habits. In the 1960 s and 1970 s there were very little avenues for applying these new techniques at the site. In view of the importance of the site it would be worthwhile to re-examine and revisit one of these sites with the sole intention of collecting sedimentological and archaeobotanical samples for addressing the following core issues:

- How the men were responding to the Post-Pleistocene environmental changes and have evolved a new technology for survival in a New Age i.e. Holocene.
- Status of Mesolithic hunter gatherers, whether there was a Mesolithic substratum at all in the region is a huge research issue

- Whether the aceramic stage is the early stage in a series of stages leading towards food production or there are any indications of a technological intrusion in terms of economic activity.
- What is the nature of interaction between Kashmir Neolithic and the Neolithic sites of the neighboring region especially Gomal Valley in the north-west and that the Chinese in the east.
- To understand the interaction that existed between Neolithic food producers of Kashmir and Harappan or the contemporary Chalcolithic cultures in the west.

Present report on Burzahom Excavations (1960-1971) will stand vindicated if it is able to generate curiosities among the archaeologist to conduct further multi disciplinary investigations in the valley to address above issues and also to reconstruct various stages in the evolution and developments of food producing communities on basis of local climate.

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Appendix I

Team Members of Burzahom Excavation (1960-71)

- 1. T.N. Khazanchi**
- 2. Raghubir Singh**
- 3. K.M. Srivastava**
- 4. B.M. Pande**
- 5. R.K. Pant**
- 6. Bardari Lal Shah**
- 7. A.K. Sharma**
- 8. Padmanabam**
- 9. S.P. Jain**
- 10. Jassu Ram**
- 11. Puran Singh**
- 12. S.S. Saar**
- 13. Chander Mohan Sharma**
- 14. R.N. Kaw**
- 15. S.N. Tikoo**
- 16. C.L. Malla**
- 17. Laksmi Narayan**
- 18. Mohammad Amin**
- 19. Prem Nath Kaul**
- 20. Bhusan Lal Kak**
- 21. Purand Chand**
- 22. Shiv Nath Singh**
- 23. Motilal Tikoo**
- 24. Mohammad Sidiq Dar**
- 25. S.N. Kanna**
- 26. Gulam Nabi Bhat**
- 27. Wali Mohammad Bhat**
- 28. Abdul Wahab Bhat**

APPENDIX- II

Table showing distribution of samples collected by T.N. Khazanchi for dating

					Coordinates of Sample			Reasons of Possible Contamination				
Sl. No.	Basic Carbon Material	Nature and percentage of the extraneous material	Weight of total material	Weight (expected) of Carbon	(a) Locus	(b) Depth	(c) Stratum	(a)	(b) Roots	(c) Other	Date of collection	General Remarks
Neolithic Phase (I)												
1.	Charcoal	Soil	9 tolas	-	BZH-3'61 A1 & A2	11'-3"	Dwelling pit 'C'	-	-	-	21-10-61	
2.	Charcoal	Soil	19 $\frac{1}{2}$ tolas	-	BZH-3'61 ZB1(S.E)	14'-6"	Dwelling pit 'D'	-	-	-	28-11-62	Transitional stage from Aceramic level to Neolithic Phase I.
3.	Charcoal	Soil	46 tolas	-	BZH-3'61 B2(N.E.)	9'-3" to 11'-3"	Dwelling pit 'C'	-	-	-	28-11-62	
4.	Charcoal	Soil	71 tolas	-	BZH-3'61 A1 & A2	13'-7"	Dwelling pit 'C'	-	-	-	28-11-62	
5.	Charcoal	Soil	28 tolas	-	BZH-3'61 B2(N.E.)	8' to 9'-3"	Dwelling pit 'C'	-	-	-	30-11-62	
Neolithic Phase (II)												
6.	Charcoal	Soil	7 tolas	-	BZH-3'62 A19 (N.E. & N.W.)		Layer 9	-	-	-	10-10-62	
7.	Charcoal	-	18 tolas	-	BZH-1'62 (Northern Extension) XIXx-XXIIx	9'-7"	Layer 13	-	-	-	16-10-62	
8.	Charcoal	-	33 tolas	-	BZH-1'62 (Northern Extension) XXIIx-XXIIIx	12'-9 $\frac{1}{2}$ "	Layer 12	-	-	-	19-10-62	
9.	Charcoal	Soil	22 tolas	-	BZH-1'62 (Northern Extension) XIXx-XXIIx	9'-7"	Layer 13	-	-	-	21-10-62	
10.	Charcoal	Soil	-	-	BZH-1'62 (Northern Extension) XXIIx-XXIIIx	12'- 9 $\frac{1}{2}$ "	Layer 13	-	-	-	21-10-62	
11.	Charcoal	Soil	10 tolas	-	BZH-1'62 (Northern Extension) XXx-XXIIIx	9'-4" to 11'-4"	Pit 9 sealed by layer 10	-	-	Burnt clay	21-10-62	
Neolithic Phase II (Closing Stage)												
12.	Charred bones	-	9 tolas	-	BZH-3'62 A11(N.E)	6'-11"	Pit 7 sealed by pit 5. sealed by 3 layer	-	-	-	19-10-62	Transitional stage from phase II to Megalithic phase (Phase III)

DISTRIBUTION OF HUMAN SKELETAL REMAINS

Skeletal No.	Period	Area	Location	Nature of Burial	Orientation	Depth	Age/sex	Grave goods
Skl. 2	Neolithic Period II	BZH-1 (1962)	Pit s.b layer 7	Primary articulated child, foetal position	West-East	2. 77 m	5 years child	-
Skl.4	Neolithic Period II	BZH-3 (1962)	Pit cut in layer 5 s.b. 4b	Secondary, disarticulated, bones treated with red ochre	East- West	1.68m	11-15 years juvenile	-
Skl. 5	Neolithic Period II	BZH-3 (1962)	Pit cut in 6, s.b. 5	Secondary, partially articulated, treated with red ochre	S.E.-N.W.	1.83 m	51-55 Male	An earthen pot & a small barrel shaped paste bead
Skl. 6	Neolithic Period II	BZH- jeep track	Oval pit	Partially articulated	North-South	1.14 m	51- 55 Male	Animal bones
Skl. 8	Neolithic Period II	BZH-1 (1964)	Pit cut in 9 s.b. pit 3	Primary articulated, crouching	S.E.-N.W.	3.15m	31-35 Female	Five Carnelian barrel beads
Skl. 9	Neolithic Period II	BZH-3 (1964)	Inside dwelling pit, layer 7, grave pit s.b. 6	Primary articulated ribs charred, su-pine position	S.W. –N.E.	3.02 m	51-55 Male	-
Skl.10	Neolithic Period II	BZH-3 (1964)		Primary articulated	N.W. –S.W.	3.22 m	26-30 Male	Circular stone bowl
Skl. 1	Megalithic	BZH-1 (1962)	Pit cut in 5, s.b. 4a	Primary articulated flexed	West- East	1.50m	46-50 Male	Five earthen goblets
Skl. 3	Megalithic	BZH-1 (1962)	Pit cut in 3a, s.b. 3	Primary articulated crouching	Skull facing S.E.	1.775m	31-35 Female	Skull of a dog
Skl. 7	Megalithic	BZH-3 (1962)	Pit cut in 5 s.b. 4	Primary articulated crouching,	N.E.- S.W.	2.235m	26-30 Female	Antler at 1.50 m, Animal

				bones treated with red ochre, skull having trephined bones				lower jaw and antler at 2.13- 1. 35 m, Soap stone circular disc.
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Fig. 7.1.a : Anthropologist from An.S.I. Calcutta at Burzahom



Fig. 7.1.b : Anthropologist from An.S.I. Calcutta



Fig. 7.1.1 : Skelton of a Male

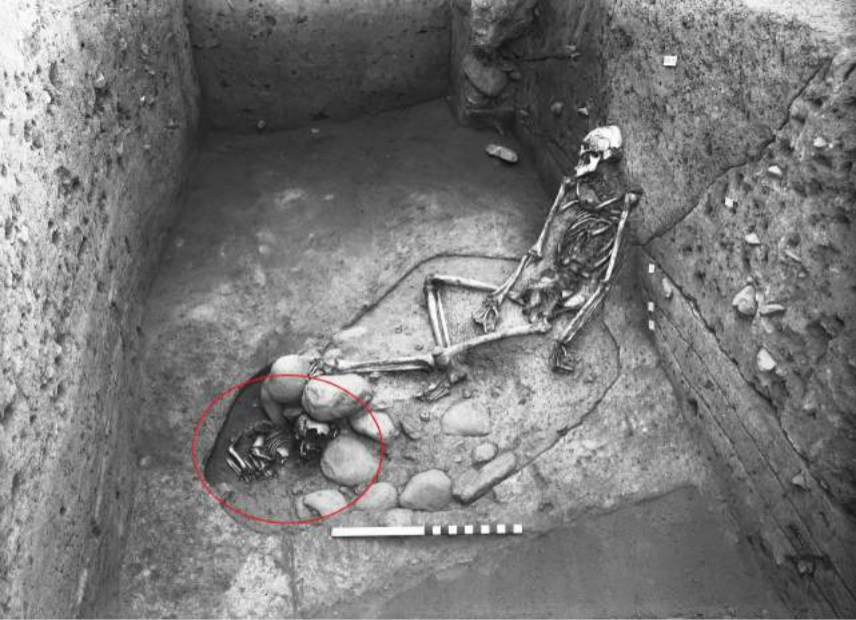


Fig. 7.1.2 : Skeleton of a child



Fig. 7.1.3 : Skelton of a Female



Fig. 7.1.4 : Skeleton of a Juvenile

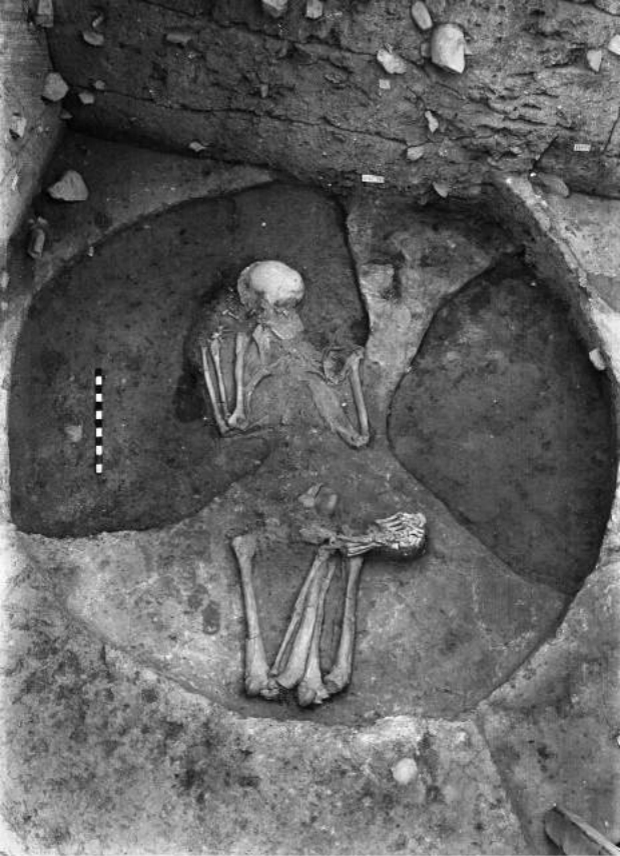


Fig. 7.1.5 : Skeleton of a Male



Fig. 7.1.6 : Skeleton of a Male & animal bones



Fig. 7.1.7 : Skelton of a Female, skull having trepined holes

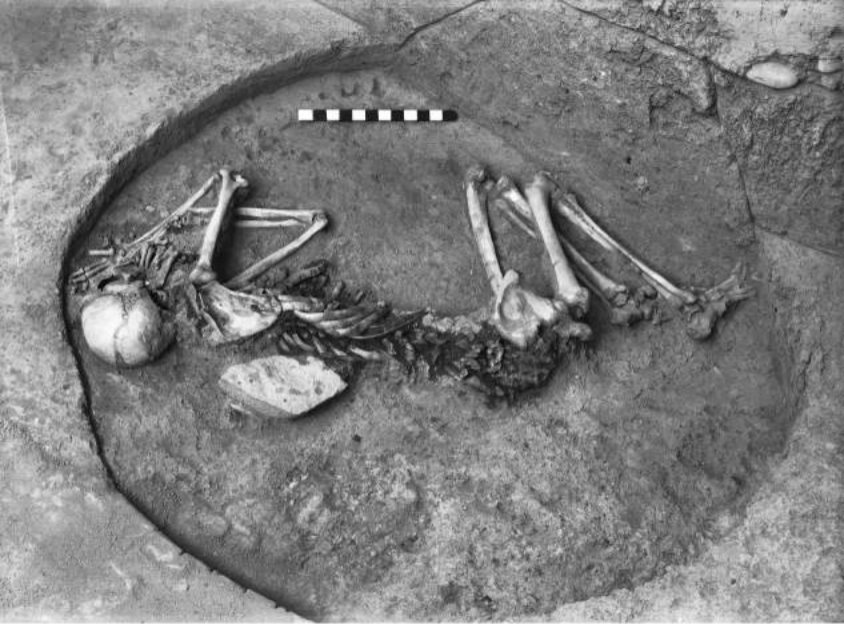


Fig. 7.1.8 : Skelton of a Female

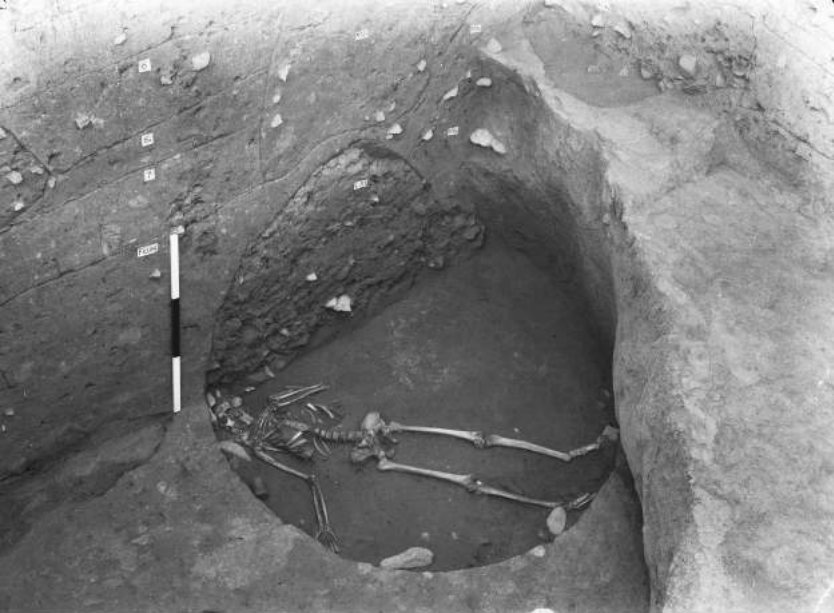


Fig. 7.1.9 : Skelton of a Male



Fig. 7.1.10 : Skeleton of a Male (depth 3.23m) with circular stone ball



Fig. 7.1.10(a) : Skelton of a Male (3.22m)



Fig. 7.2.1 : Skelton No. 1, Skelton of a Dog



Fig. 7.2.3 : Skelton of Wolf

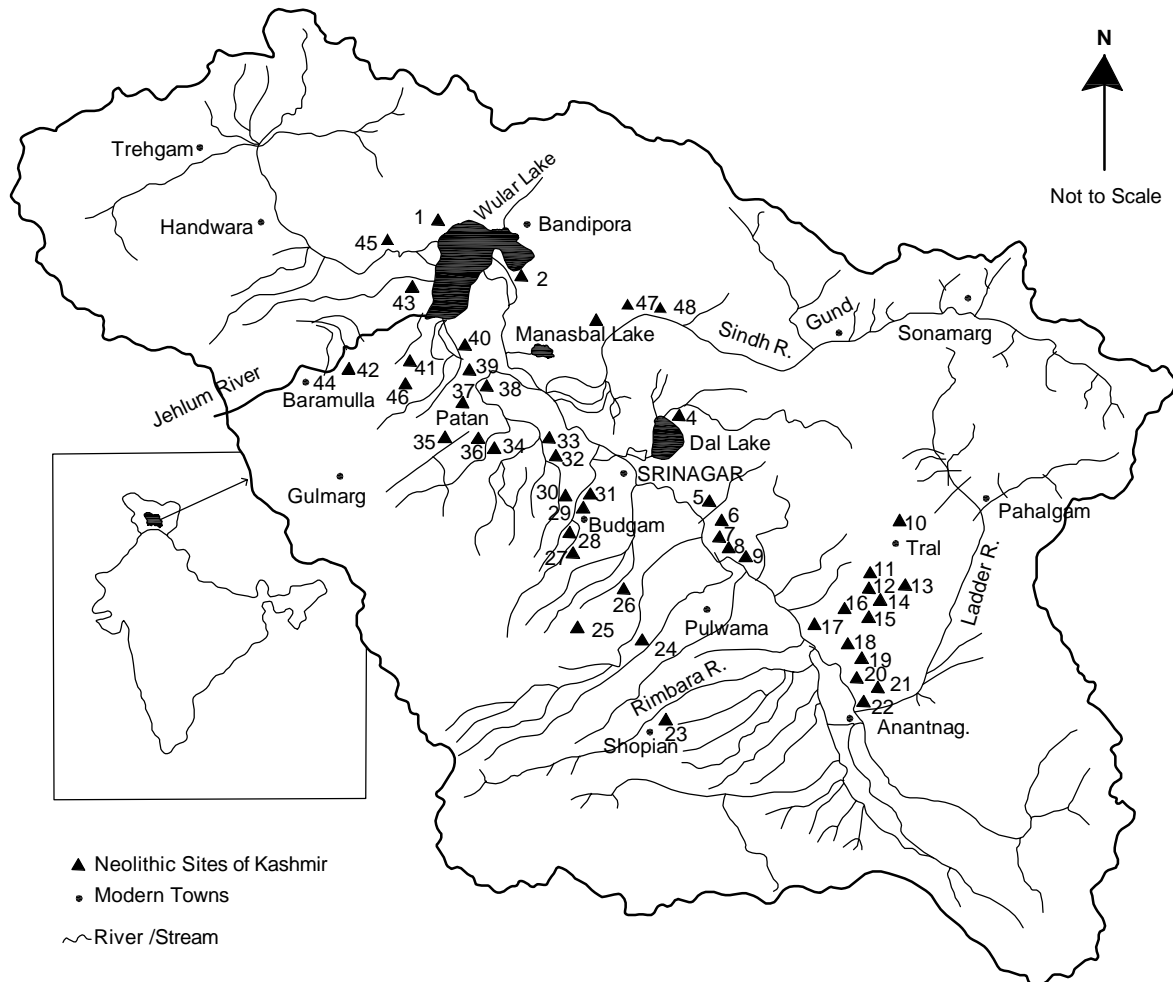


Fig. 7.2.4 : Cluster of skulls and other fragmentary bones



Fig. 7.2.5 : Skelton of Ibex

MAP SHOWING NEOLITHIC SITES OF KASHMIR



1. Turkepura	12. Bagegund	23. Balapur	34. Aripanthan	44. (a) Huin
2. Gurhama Sangari	13. Gofkral	24. Romu	35. Kuldur	45. Yunteng
3. Nunar	14. Pinglish	25. Nilnag	36. Tapribal	46. Rasim Bagh
4. Burzahom	15. Haribous	26. Habashah Sahib	37. Gopasudar	47. Pethpuran Teng
5. Sempur	16. Dadsar	27. Khan Sahib	38. Wanigoam	48. Dragtiyng
6. Pampur	17. Borus	28. Dur	39. Kiri Chak	
7. Shahpend	18. Jayadevi Udar	29. Budgam	40. Bata Chak	
8. Olichibagh	19. Thajwar	30. Kaneer	41. Raiteng	
9. Sombur	20. Kanyalwan	31. Damudar Udar	42. Kaneshpuer	
10. Narastan	21. Wazatal	32. Koshans	43. Bomai	
11. Hariparigoam	22. Brah	33. Hayatpur	44. Kanisipur	

